
**INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN FOR
THE 417th BASE SUPPORT BATTALION KITZINGEN
2000-2004**

VOLUME II – CANTONMENT AREA PLAN

FOR THE
U.S.ARMY ENGINEER DISTRICT, EUROPE
KONRAD-ADENAUER RING 39
65187 WIESBADEN

INRMP - VOLUME II

417th BSB KITZINGEN

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ACRONYMS

AAFES	Army/Air Force Exchange Service
ABG-75	Auftragsbautengrundsätze (Principle for Contracting Construction Projects)
ACE	Armored Combat Earthmovers
ADP	Automated Data Processing
AFH	Army Family Housing
AFPMB	Armed Forces Pest Management Board
AR	Army Regulation
ASG	Area Support Group
AST	Area Support Team
ATC	Army Training Command
BASOPS	Base Operations
BayWaldG	Bayerisches Waldgesetz (Bavarian Forest Act)
BayWG	Bayerisches Wassergesetz (Bavarian Water Act)
BCPC	Bradley Crew Proficiency Course
BfN	Bundesamt für Naturschutz (Federal Nature Protection Authority)
BOD	Biochemical Oxygen Demand
BSB	Base Support Battalion
CADD	Computer Aided Drafting and Design
CAP	Conservation Assistance Program
CHC	Chlorinated Hydrocarbons
CHPPM-E	Center for Health Promotion and Preventive Medicine Europe
CMTC	Combat Maneuver Training Center
COD	Chemical Oxygen Demand
CONUS	Contiguous United States
CTT	Combat Training Theater
CX	Categorical Exclusion
DAPam	Department of the Army Pamphlet
DCA	Directorate of Community Activities
DIN	Deutsche Industrie Norm (German Industry Standard)
DoD	Department of Defense
DoDDS	Department of Defense Dependent Schools
DOT	Directorate of Training
DPW	Directorate of Public Works
DRMO	Defense Reutilization and Marketing Office
DRMS	Defense Reutilization and Marketing Service
DSN	Defense System Network
DSV	Deutscher Schädlingbekämpferverband (German Pest Association)
EA	Environmental Awareness
EAC	Emergency Action Center
ECAS	Environmental Compliance Assessment System
EFMB	Expect Field Medical Badge
EIS	Environmental Impact Statement
EMO	Environmental Management Office
EO	Executive Order
EP&S	Engineering Plans and Services

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EQCC	Environmental Quality Control Committee
ESRI	Environmental Systems Research Institute
FAO	Federal Assets Office
FGS-G	Final Governing Standards, Germany
FORSCOM	Forces Command
FRG	Federal Republic of Germany
FY	Financial Year
GIS	Geographic Information System
GPS	Global Positioning System
GSW	German Specified Water
GUI	Graphic User Interface
HQDA	Headquarters Department of the Army
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
ISA	Interservice Agreement
ITAM	Integrated Training Area Management
IVL	Institut für Vegetationskunde und Landschaftsökologie (private landscape and ecology consultancy company)
LCTA	Land Condition Trend Analysis
LfU	Landesamt für Umweltschutz (State Environmental Protection Agency)
LPflG	Landespfllegegesetz (Land Conservation)
LRAM	Land Rehabilitation and Maintenance
LTA	Local Training Area
MACOM(s)	Major Command(s)
MACS	Multipurpose Arcade Combat Simulators
MAGIC	Military Activity GIS Interface Concept
MAI	Main Active Ingredient
MAP	Management Action Plan
MATCH	Modular Armor Tactical Compact House
MDEP	Management Decision Package
MEDDAC	Medical Department Activity
MGE	Modular GIS Environment
MILES	Multiple Integrated Laser Engagement System
MOM	Measures of Merit
MOUT	Military Operations on Urban Terrain
MSL	Mean Sea Level
MWR	Moral, Welfare, and Recreation
NAF	Non-Appropriated Funds
NATO	North Atlantic Treaty Organization
NBC	Nuclear Biological Chamber
NEPA	National Environmental Policy Act
OCONUS	Outside Continental United States
ODCSENGR	Office of the Deputy Chief of Staff, Engineer
ODCSOPS	Office of the Deputy Chief of Staff for Operations and Plans
OMA	Operations and Maintenance, Army
OPCON	Operational Control
OPFOR	Opposing Force

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OPRED	Operational Readiness
OPTEMPO	Operational Tempo
PAI	Pounds of Active Ingredient
PflSchG	Pflanzenschutzgesetz (Plant Protection Act)
PLS	Planning Level Surveys
PMI	Preliminary Marksmanship Instruction
PMR	Program Management Review
pnV	Potential Natural Vegetation
PX	Post Exchange
RDB	Red Data Book
RPMA	Real Property Maintenance Activity
RSC	Regional Support Center
RTLP	Range and Training Land Program
SA	Supplementary Agreement
SAC(s)	Special Areas of Conservation
SCI(s)	Sites of Community Importance
SEE	Small Equipment Excavator
SOFA	Status of Forces Agreement
SOP	Standard Operating Procedure
SOS	Schedule of Services
SPA	Special Protection Area
SPOT	Satellite pour l'observation de la Terre (Earth Observation Satellite)
STOV	Standortverwaltung – German agency that provides base operation services at Giebelstadt Army Airfield
TAACOM	Theater Army Area Command
TES	Threatened and Endangered Species
TCT	Total Containment Trap
TIM	Technical Information Manual
TM	Technical Manual
TRI	Training Requirements Integration
TrinkwV	Trinkwasserverordnung (Federal Drinking Water standards)
TSD	Training Support Division
TSSDS	Tri-Services Spatial Data Standard
TÜV	Technischer Überwachungsverein (third party testing organization)
UNIX	Operating system developed by Bell Laboratories (an AT&T subsidiary)
USACERL	U.S. Army Construction Engineering Research Laboratory
USAEC	U.S. Army Environmental Center
USAREUR	U.S. Army Europe
USAWES	U.S. Army Waterways Experiment Station
WHG	Wasserhaushaltsgesetz (Federal Water Management Act)
WWTP	Wastewater Treatment Plant

GLOSSARY OF TERMS

ABG-75: "*Auftragsbautengrundsätze - 1975*" (Principles for Contracting Construction Projects - 1975) is an agreement between the Federal Republic of Germany and the financing bodies, to include the United States, on the procedures to be followed by the financing bodies to accomplish construction within Germany.

Adverse Effect: Changes that reduce the quality of the natural environment or diminish the quality or significant value of archaeological resources, cultural resources, or property.

Biotopes: A small habitat characterized by its unique composition.

Biodiversity: As defined by AR 200-3, biodiversity is the variety of life and its processes, it includes the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur.

Carrying Capacity (Ecological): The maximum density of wildlife which a particular area or habitat is capable of carrying on a sustained basis without deterioration of the habitat.

Carrying Capacity (ITAM): The amount of training that a given parcel of land can accommodate in a sustainable manner with a reasonable and prudent level of maintenance and rehabilitation. The optimum capacity is a balance of usage, condition, and level of maintenance.

Check Dams: Structures built on ephemeral stream beds in order to control the flow of sedimentation into surface waters; often associated with retention basins.

Chlorination: The application of chlorine to water, wastewater, or industrial wastes, generally for the purpose of disinfection.

Conservation: Wise management and use of natural resources to provide the best public benefits for present and future generations.

Contaminated water: Water that has been intruded by microorganisms, chemicals, wastes, or wastewater in a concentration that makes the water unfit for its intended use.

Edaphic: Environmental conditions that are control by the physical, chemical and biological characteristics of soil.

Edge Effect: The effect, generally favorable to wildlife, produced by the conditions existing where one habitat or cover type ends, and another one begins.

Ephemeral: Temporary or seasonal.

Endangered Species: Any species of flora or fauna, listed in Table 13-1 in the FGS-G, in a German state's Red List (Rote Liste Deutschland), or designated in some other fashion by the

governments of the United States or Germany whose continued existence is, or is likely to be, threatened and is, therefore, subject to special protection from destruction or adverse modification of associated or required/critical habitat.

Environment: The natural and physical environment, excluding social, economic, and other environments.

Fauna: Animals collectively.

Floodplain: The lowland and relatively flat areas adjoining streams and rivers including at a minimum that area subject to a one percent or greater chance of flooding in any given year.

Flora: Plant life collectively.

Forest Management: The science, art, and practice of managing and using for human benefit the natural resources that occur on or in association with forest lands.

German Specified Water: Water delivered according to the German standards.

Habitat: The place where a plant or animal species naturally lives and grows, or the environment in which the life needs of an organism, population, or biological community are supplied.

Herbicide: A chemical agent used to destroy or inhibit plant growth.

Hydrosere: a particular example of plant succession in watery or moist environments. This type of succession is found only on static surface water bodies which are reducing in size.

Improved Grounds: Acreage on which intensive maintenance activities are performed.

Integrated Pest Management: The use of all appropriate technology and management techniques to bring about pest prevention and suppression in a cost-effective and environmentally sound manner.

Inventory-Wildlife: Estimates of populations of wild animals, by species, on an area at a given time, based upon various types of procedures.

Management Plan: A document describing the quality, quantity, condition, and actions to ensure stewardship of natural resources.

Multiple Use: The integrated management of more than one land use to achieve the optimum use and enjoyment of natural resources while maintaining a balance of environmental qualities, ecological relationships, and aesthetic values.

Natural Resource: All living and inanimate materials supplied by nature that are of aesthetic, ecological, educational, historical, recreational, scientific, or other value.

Natural Resources Management: Action taken to protect, manipulate, alter, or manage environmental, human, and biological resources in harmony with each other to meet present and future human needs.

Outdoor Recreation Area: Land or water area with characteristics that make it suitable for one or more specific outdoor recreation activities. It does not include athletic facilities such as ball fields and golf courses.

Outfall: The point or location where wastewater or drainage discharges from a sewer, drain or conduit.

Pest: Organisms (except for microorganisms that cause human or animal disease) that adversely affect the well being of humans or animals, attack real property, supplies, equipment or vegetation, or are otherwise undesirable.

Pesticide: Any substance or mixture of substances, including biological control agents, that may prevent, destroy, repel, or mitigate any pests; also any substance or mixture of substances used as plant regulators, defoliants, or desiccants.

pH: The acidity or alkalinity of a substance measured as the concentration of hydrogen ions. $\text{pH} = -\log c\text{H}$ where $c\text{H}$ is the concentration of hydrogen ions.

Potable water: Water that has been examined and treated to meet proper standards and declared by responsible authorities to be fit for drinking and domestic use.

Retention Basin: Structures built to retain storm water and other surface run-off water in order to control sedimentation; often associated with check dams.

Runoff: Water from rain, snowmelt, or irrigation that flows over the ground surface to a stream, lake, pond, or underground aquifer.

Sediment: Solid material, such as silt, sand, and organic matter, that has moved or is moving by natural forces to settle in a new location.

Semi-improved Grounds: Areas on which periodic recurring maintenance is performed, but to a lesser degree than improved grounds.

Seibert Stakes: These are wooden stakes, which are a standard length of 1.8 to 2 meters and a standard diameter of 8 to 10 cm and painted red and yellow, to mark wetlands, pipe crossings, recovering lands, and other environmentally sensitive areas. These stakes are named after a former garrison commander named Seibert at Hohenfels.

Sludge: The solids separated from liquids during processing or through deposition on bottom of streams and other bodies of water. A mixture of liquids and solids.

Surface Waters: Those waters continuously or occasionally flowing in beds, standing, or naturally flowing from springs.

Standortverwaltung: A German administrative body for a location or area. Commonly referred to as the STOV. In the 419th BSB the STOV provides base operations services to Giebelstdt Army Airfield.

State: The political subdivision referred to as *Land* in Germany.

Sustainable Use: Use of the land that meets the needs of the present generation without compromising those of future generations.

Threatened Species: Those plants and animals that are likely to become endangered within the foreseeable future throughout a significant portion of their ranges.

Unimproved Grounds: Acreage occupied by land on which no maintenance activities occur.

Wastewater Treatment Plant (WWTP): Any DoD or host nation facility designed to treat wastewater before its discharge to waters of the host nation and in which the majority of such wastewater is made up of domestic sewage.

Water Use: The removal or diversion of waters from surface waters: damming or lowering of surface waters; removal of solids from surface waters so that the condition of the water or its drainage is affected; introduction or discharge of substances into coastal waters; discharge of substances into the groundwater; removal, unearthing, drawing, and diverting of groundwater; damming, lowering, and conducting groundwater through facilities intended for these purposes; and measures that are likely to cause lasting or significant deleterious changes in the physical, chemical, or biological quality of the water.

Waters of The Host Nation: Surface waters including the territorial seas recognized under customary international law, including;

- all waters that are currently used, used in the past, or may be susceptible to use in commerce;
- waters that are or could be used for recreation or other purposes;
- waters from which fish or shellfish are or could be taken or sold;
- waters that are used or could be used for industrial purposes by industries;
- waters including lakes, rivers, streams (including intermittent streams) sloughs, prairie potholes, or natural ponds;
- tributaries of waters identified above.

Waste treatment systems, including treatment ponds or lagoons, are not waters of the host nation. This exclusion only applies to human-made bodies of water that neither were

originally waters of the host nation nor resulted from the impoundment of waters of the host nation.

Water Protection Area: An area established by a German state to protect public water supplies, supplement groundwater, or prevent harmful runoff of precipitation and flooding, as well as to prevent entry into the water of soil constituents or substances used to treat and fertilize plants. The state will publish a set of restrictions for each area designated applicable to all, including DoD components.

Wetlands: Areas inundated or saturated by surface water or groundwater at a frequency and a duration to support a prevalence of vegetation typically adapted for life in saturated soil conditions.

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CHAPTER 10.0

CANTONMENT AREA PLAN INTRODUCTION

10.1 ORGANIZATION OF VOLUME II

Volume II of the Integrated Natural Resources Management Plan (INRMP) for the 417th Base Support Battalion (BSB) contains Chapters 10 through 12. General introductory information is provided here in Chapter 10. Chapter 11 addresses specific natural resources management programs for the cantonment areas. Sections for each management program include descriptions of responsibilities; points of contact; a program overview; standard operating procedures; management issues and concerns; management goals and objectives; project/program priorities; and implementation information.

The natural resource management programs for the cantonment areas have identified management goals designed to address management issues and concerns. The Project/Program Priorities section of each program are defined as Highest Priority, Important, or Less Important. The following definitions are according to the *Draft Guidelines for Preparing Integrated Natural Resources Management Plans* (AEC, 1997).

- The projects that have been classified as Highest Priority are those which are needed in order to be in compliance with environmental regulations;
- Those projects that have been classified as Important are those that will directly benefit the military mission or which will significantly improve the quality of life at the installation; and
- Those projects classified as Less Important are those which would first be cut or will only be implemented if funding is available.

Some of the natural resource programs addressed by this INRMP are not applicable to cantonment areas. Accordingly, detailed information on these programs is not presented. Furthermore, some information for the management programs overlap with the training areas. In such cases, Volume III of the INRMP is cross referenced to avoid repeating information. Overall information on implementation of the INRMP for the cantonment areas is summarized in Chapter 12. References are listed in Appendix A2 and persons contacted are listed in Appendix B2. Additional appendices are included for individual management programs where appropriate. Each volume has separate appendices.

10.2 SUMMARY OF CANTONMENT AREA NATURAL RESOURCES

This section provides a brief overview of natural resources found in the cantonment area. More detailed descriptions are provided in Volume I. The 417th BSB has three Area Support Teams (ASTs): Würzburg, Kitzingen and Giebelstadt and together these have nine cantonment areas, Breitsohl Radio Site, Faulenberg Kaserne, U.S. Hospital, Leighton Barracks, Harvey Barracks, Larson Barracks Cantonment Area, Marshall Heights, Schwanberg Radio Site and Giebelstadt Area. The present total acreage of the cantonment areas is 2035.99 acres (823.95 hectares). The cantonment areas are situated at elevations between approximately 187 to 585 meters (613 to 1,918 feet) above mean sea level (MSL), with the highest elevation occupied by Breitsohl Radio Site. Land use includes: housing, community facilities, medical facilities, outdoor recreation, industrial facilities, maintenance and supply. Water supply and wastewater treatment facilities are summarized in Volume 1, Table 4.3.1 and 4.3.2, respectively. The Main River is within 3 km of all locations. Surface water resources in the immediate vicinity are shown Volume I, Section 5.7, Table 5.7.1.

10.3 POINTS OF CONTACT

Natural resources management point of contact (POC) information for the installation and German agencies are presented in Tables 10.3.1 and 10.3.2, respectively.

TABLE 10.3.1
417TH BSB NATURAL RESOURCES MANAGEMENT PLAN
POINTS OF CONTACT

Program	Responsible Department	Primary Point of Contact			
		Title	Name	Building Number	Telephone Number (DSN)
USAREUR ITAM Program Manager	DOT	ITAM Program Director	Mr. Wolff	621	475-6902
USAREUR Regional Support Center	EMO	Chief EMO (HTA)	Mr Böhm	34	466-2658
ITAM Program	DOT	Range Control, LTA Manager	Mr Ferrara	254	351-8206
Forest Management	Buildings and Grounds	Chief, Buildings and Grounds	Mr. Ohlenschlager	221	351 4449
Fish & Wildlife Management	417 th BSB, S2/3 EMO	Hunting & Fishing Coordinator Natural Resources Manager	Mr. R. Gentry	221	351-5609
- Fish			Mr. K. Sims		351-4581
- Wildlife	EMO	Chief, EMO	Mr. K. Sims	221	351-4581
Rare, Threatened and Endangered Species Management	EMO	Chief, EMO	Mr. K. Sims	221	351-4581
Wetlands Management	EMO	Chief, EMO	Mr. K. Sims	221	351-4581
Water Resources Management	EMO	Chief, EMO	Mr. K. Sims	221	351-4581
- Water Resources Quality	EMO	Chief, EMO	Mr. K. Sims	221	351-4581
- Water Supply/Wastewater Treatment	Utilities	Chief, Utilities	Mr. H. Thal	221	351-4451
Agricultural and Grazing Outleasing	EMO	Natural Resources Manager	Mr. K. Sims	221	351-4581
Pest Management	Buildings and Grounds	Chief, Buildings and Grounds	Mr. Ohlenschlager	221	351-4449
Fire Management	Fire Department	Fire Chief	Mr. Wolf	221	350-7396
Outdoor Recreation	Outdoor Recreation	Chief, Outdoor Recreation	Mr. Soholt	156	355-8629
Grounds Maintenance and Vegetation Management	Buildings and Grounds	Chief, Buildings and Grounds	Mr. Ohlenschlager	221	351-4449

TABLE 10.3.2
GERMAN AGENCY POINTS OF CONTACT

Program Name	Responsible Agency	Primary Point of Contact		
		Title	Name	Telephone Number
Forest Management*	Bundesforstamt Hammelburg-Reußenberg	Forstdirektor	Mr. G. Rudolf	09732-2045
Forest Management*	Staatsforstamt	Forstdirektor	Mr. K-O von Deuster	09383/384
Wildlife Management	Staatsforstamt	Forstdirektor	Mr. K-O von Deuster	09383/384
TES Management	Forest Inspection South Bundesforstamt	Forstdirektor	Mr. L. Schmid	0911-376 3940
TES Management	Regierung von Unterfranken	Civil Servant	Mr. Krämer	0931 3801163
TES Management	Staatliches Hochbauamt	Civil Servant	Mr. Kamin	0931 4504684
TES Management	Landratsamt Kitzingen Untere Naturschutzbehörde	Civil Servant	Mr. Lang	09321 928748
TES Management	Landratsamt Würzburg Untere Naturschutzbehörde	Civil Servant	Mr. Heinle	0931 8003443
TES Management	Stadt Würzburg Umweltamt	Civil Servant	Mrs. Remling	0931 373683
Agricultural and Outleasing Program	Bundesvermögensamt	Regierungsoberinspektor	Mr. Neeb	0931 355 1033

* The points of contact for each of the Forest Districts are listed in Volume III, Section 14.3.1.

CHAPTER 11.0

NATURAL RESOURCES MANAGEMENT PROGRAMS

11.1 INTRODUCTION TO MANAGEMENT PROGRAMS

This chapter presents the natural resources program structure for the 417th BSB cantonment area, discusses management issues and concerns, and establishes goals and objectives to address management issues. The program structure is based on the installation-specific management situation and is designed to facilitate issue identification and prioritization, as well as project funding, implementation, and tracking. The natural resources management programs described in the Integrated Natural Resources Management Plan can be grouped into two categories: Integrated Training Area Management (ITAM) Programs and resource-specific management programs.

The following information is presented below for each of the management programs applicable to the cantonment areas: responsibilities and points of contact at the installation and the German Government; applicable regulatory requirements; a description of the program and its current status; standard operating procedures; management issues and concerns; management goals and objectives; inventorying and monitoring; resources required for implementation; project/program priorities; cost saving opportunities; implementation schedule; implementation funding options; and command support.

The funding of natural resources management programs within the cantonment areas falls into two major categories; Environmental and Operations and Maintenance (OMA) funds. Environmental funds include: VENC (Compliance funds); VENN (Conservation funds) and VEPP (Pollution Prevention funds). VENC, VENN and VEPP are four digit codes used to describe the Management Decision Package (MDEP). Further details on specific projects that can be programed for each fund type are available from the EMO Office and USAREUR.

In addition, Environmental and Buildings and Grounds offices can apply for Agricultural and Grazing Reimbursable Funds (AG-Funds) to the U.S. Army Environment Center (AEC).

It should be noted that VENC funds can be used to bring a program into compliance, but once a program is brought into compliance, these funds cannot be used again if the program goes out of compliance at a future date. OMA funds are used for projects that do not fall into any of the other categories. AG-Funds tend to be for smaller value amounts and are directed at projects with a high ecological or public relations value.

Command support for natural resources management programs within the cantonment areas are determined by funding category:

- Command support for VENC, VENN or VEPP funds is through the 98th Area Support Group or Headquarters USAREUR; and
- Command support for OMA funds is through the 417th Base Support Battalion, the 98th Area Support Group, and the Program Management Review (PMR)
- Command support for AG-Funds is through Headquarters USAREUR.

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11.2 INTEGRATED TRAINING AREA MANAGEMENT (ITAM) PROGRAM

The ITAM Program is not applicable to the cantonment areas because no training lands are present. Accordingly, the ITAM Program is not addressed in Volume II of this INRMP. The ITAM Program is covered in Volume III, Chapter 14. Therefore, the rest of this section has been intentionally left blank.

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11.3 FOREST MANAGEMENT PROGRAM

Forested areas in the 417th BSB are the responsibility of the Bundesforstamt, Staatsforstamt, Public and Private owners. The administrative districts which perform management practices at the 417th BSB do not make a distinction between the cantonment areas and the training areas. In an effort to be concise, all forest management information can be found in Volume III, Section 14.3. Therefore, the rest of this section has been intentionally left blank.

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11.4 FISH AND WILDLIFE MANAGEMENT PROGRAM

Fish and wildlife management within the 417th BSB is administered by two different organizations. Fisheries resources are managed under the Outdoor Recreation Program and are therefore included in Volume II, Section 11.11. Wildlife management is the responsibility of the Bundesforstamt, Staatsforstamt and Public and Private owners and is, therefore, included in the Forest Management Program, Volume III, Section 14.3. POC information for all relevant programs is given in Tables 10.3.1 and 10.3.2. Therefore, the rest of this section has been intentionally left blank.

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**11.5 RARE, THREATENED AND ENDANGERED SPECIES MANAGEMENT
PROGRAM**

In an effort to be concise, all Rare, Threatened, and Endangered Species information can be found in Volume III, Section 14.5.

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11.6 WETLANDS MANAGEMENT PROGRAM

According to the information available at the current time, there are no areas within the cantonment areas, which are designated as jurisdictional wetlands under U.S. Law. There are several small wetlands that are addressed under the Bavarian Nature Protection Law (*Bayerisches Naturschutzgesetz, § 13d and 13e*). However a number of man-made structures have been identified (ruts from tracked vehicles, etc.) where wet biotope types have developed. Should the definition of jurisdictional wetlands change in the future to include the wet areas located on Harvey Barracks and in Klosterforst, this section of the plan would have to be updated. Therefore, the rest of this section has been intentionally left blank.

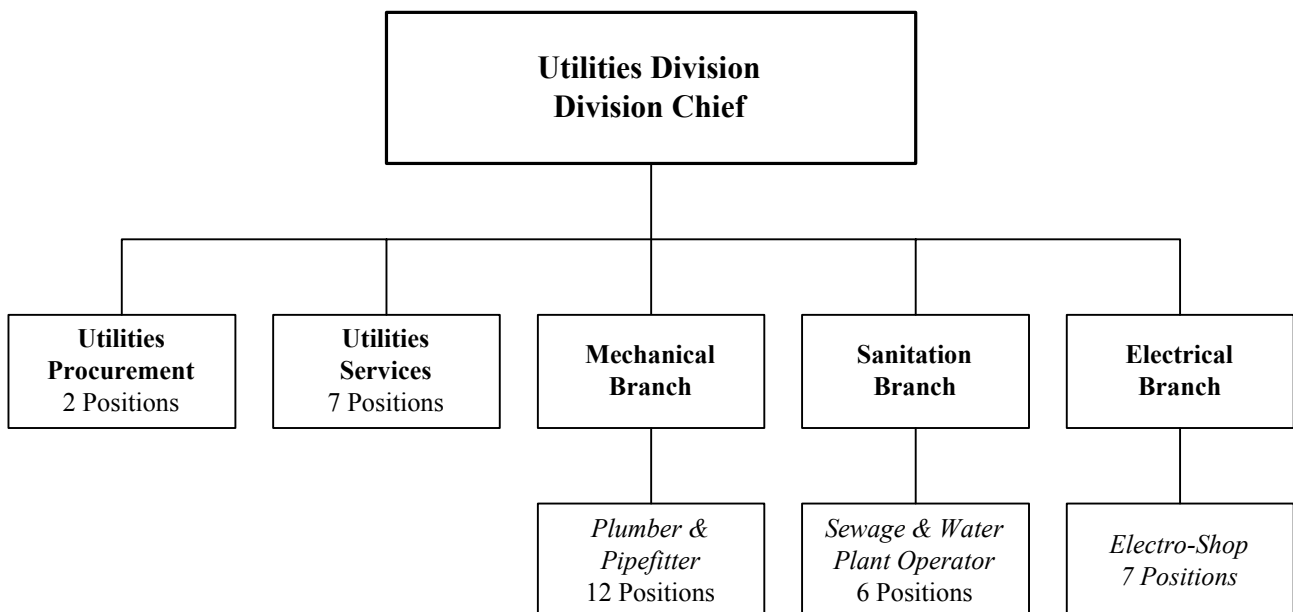
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11.7 WATER RESOURCES MANAGEMENT PROGRAM

11.7.1 Responsibilities and Points of Contact

Management responsibilities for water resources within the cantonment areas are split between the EMO and the Utilities Division, which are both under the Directorate of Public Works (DPW). Drinking water quality, wastewater treatment, and storm water management within the cantonment areas are managed by the Chief of Utilities within the Utilities Division. Surface water monitoring and protection of groundwater are managed by the EMO. Figure 11.7.1 illustrates the organization of the utility division. Point of contact information relating to Water Resources Management is included in Table 10.3.1.

FIGURE 11.7.1
ORGANIZATION CHART FOR UTILITIES DIVISION



11.7.2 Regulatory Requirements and Enforcement

Key regulations and guidance associated with this management program are described below. These and other general regulations are discussed in Volume 1, Chapter 6. Some specific regulations and guidance are not listed in Volume 1, Chapter 6, because they are applicable only to this program.

Department of Defense Regulations and Guidance

- Final Governing Standards for Germany (FGS-G) (February 1995), Chapters 3 and 4.

U.S. Army Regulations

- Army Technical Manual 5-813-3 *Water Supply, Water Treatment* (16 September 1985);
- Army Regulation 40-5, *Preventive Medicine*, (15 October 1990);
- Army Regulation 200-1, *Environmental Protection and Enhancement*, (21 February 1997);
- Army Regulation 420-49, *Water Supply and Wastewater*, (28 April 1997);
- USAREUR Supplement 1 to AR 420-46 *Water and Sewage* (19 January 1984); and
- NATO SOFA. USAREUR and 7th Army. (2 August 1959, as amended by the agreements 21 October 1971, 18 May 1981, and 18 March 1993 and the Revised Supplementary Agreement effective 29 March 1998).

German Laws and Guidance

- **22. Allgemeine Verwaltungsvorschrift über Mindestanforderungen an das Einleiten von Abwasser in Gewässer (Mischabwasser) (22. AbwasserVwV).** *22nd General Administrative Regulation Concerning Minimum Requirements for the Discharge of Wastewater in Water Bodies (Mixed Wastewater).* (1996);
- **Bayerisches Wassergesetz (BayWG).** *Bavarian Water Act.* (19 July 1994);

- **DIN 2000 Trinkwasserverordnung.** *Water Supply Regulation* August 1997;
- **DIN 2001 Eigen- und Einzeltrinkwasserverordnung.** *Private and Single Water Supply Regulation* August 1997;
- **Gesetz zur Ordnung des Wasserhaushalts, Wasserhaushaltsgesetz (WHG).** *Water Management Act.* (12 November 1996);
- **Verordnung über Anlagen zum Lagern, Abfüllen und Umschlagen wassergefährdender Stoffe und die Zulassung von Fachbetrieben, Anlagen- und Fachbetriebsverordnung (VAwSF).** *Bavarian Ordinance Dealing with Facilities for the Storage, Filling, and Transportation of Water Hazardous Substances and the Permission of Special Operations.* (No Date). Comprises a portion of the Bavarian Water Act;
- **Verordnung über die Erfassung von Wasserentnahmen.** *Regulation on the Registration of Water Uses.* (13 March 1990); and
- **Verordnung über Trinkwasser und über Wasser für Lebensmittelbetriebe, Trinkwasserverordnung (TrinkwV).** *Water Quality Standards for Drinking Water and Water Used for Food Preparation.* (12 December 1990).

11.7.3 Program Overview and Status

Water resources management in the cantonment areas addresses five main considerations: drinking water quality, wastewater treatment, storm water management, surface water monitoring, and protection of groundwater. Although formal management plans do not exist for water resources management, to the extent possible within the limitations detailed below, these programs are managed in accordance with the FGS-G.

Drinking Water Quality

Potable water for the installation is purchased from local water suppliers and is delivered to the sites as German Specified Water (GSW). Details regarding local water suppliers are provided in Volume I, Section 4.3, Table 4.3.1.

Water samples are collected and analyzed in accordance with Chapter 3 of the FGS-G. Operating reports detailing the analysis results are produced monthly. Samples for physical analysis are sent to the Center for Health Promotion and Preventive Medicine (CHPPM-EUR). Bacteriological testing is undertaken by the 67th Medical Division located at the U.S.Hospital, Würzburg. In addition all purchased water is sampled by the supplier, results of the drinking water analyses are available at www.wvv.de.

Drinking water supplied to the cantonment areas is routinely chlorinated. In addition, drinking water to Leighton Barracks, Marshall Heights and the new part of the U.S.Hospital is also fluorinated. Drinking water is delivered to one training area, Roman Hill Range as GSW.

Provision of an emergency water supply and development of an emergency contingency plan is a requirement according to (AR 420-49) Chapter 3, Section 3-3 of the FGS-G. The current plan has just been updated (Water Emergency Contingency Plan FY 99, 18 March 1999). Currently, all cantonment areas except Marshall Heights have an emergency water supply, which varies between 12 and 48 hours. To provide installation personnel, using an estimated population of 17,000, with an emergency water supply for three days based on current usage would require 100,000 l of bottled water (Water Emergency Contingency Plan FY 99, 18 March, 1999).

Wastewater Treatment and Storm Water Management

Collection and treatment of domestic and industrial wastewater and storm water is summarized in Volume I, Section 4.3, Table 4.3.2. Effluent is sampled by DPW-Utilities every quarter at the outflows to the mains. The German authorities also conduct unscheduled testing on the effluent. Records are kept by the Chief of Utilities Division.

Special water rights approvals have to be obtained, for example, for wash racks and these detail discharge limits. These are available either as general water rights approvals, or specific approvals for those sites for example, wash racks, which were renovated after the NATO-SOFA supplementary agreement (March 1998). Sites in use prior to that date have generic water rights approvals which have been “grandfathered” by USAREUR

Surface Water Monitoring and Protection of the Groundwater

Surface water run-off is not monitored. Protection of the groundwater is important as drinking water is supplied from wells located around the region. At Larson Barracks there is a water protection area situated just South West of the barracks. Immediately South East of the barracks, there is a drinking water well (S1), which is not included within the water protection area. Due to the gradient surface water run-off from the Larson Barracks area flows towards S1. On Harvey Barracks there is a small water protection area near building 197 surrounding a salt water well.

Groundwater monitoring wells are located at Faulenberg Kaserne, Harvey Barracks, Larson Barracks, Giebelstadt and Zell Supply Point. Additional details are provided in Table 11.7.1. The locations of the groundwater monitoring wells for Faulenberg Kaserne, Harvey Barracks and Larson Barracks are shown in Figures 11.7.2, 11.7.3 and 11.7.4. There is currently no map available for the wells at Giebelstadt (Koss, 18 January 2000).

Refueling operations in Klosterforst are performed in line with the installations environmental protection policies, which are designed to ensure the protection of the groundwater and other natural resources. Further details are provided in Volume 1, Section 1.4.

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TABLE 11.7.1
GROUNDWATER MONITORING WELLS

Location	Number of Wells	Comments
Faulenberg Kaserne	34	Depths of the wells are between 10 and 40 m, and there are 14 wells that exceed the limit values* for halogenated hydrocarbons. Severe examples are MW 1, W 5, W 9 and W 11 which exceed the limit by up to 75 times.
Harvey Barracks	34	Depths of the wells are between 2.7 and 10 m. Several wells exceeded the limit values.
Larson Barracks	12	Depths of the wells are 4 and 10 m; 3 wells: MW 10, MW 11, DMW 1, exceeded the limit values for halogenated hydrocarbons.
Giebelstadt	22	Depths of the Wells are between 15 and 17 m; all wells exceed the limit values for chlorinated hydrocarbons (CHC)
Zell Supply Point**	12	Depths of the Wells are between 6 and 11 m; 4 wells (P 3, P 4, P 11, P12) exceeded the limit values for total hydrocarbon and aromatic hydrocarbons during the analytical survey in December 1998. P 3 exceeded the limit values for total hydrocarbon, aromatic hydrocarbons and polycyclic aromatic hydrocarbons dramatically. P 4 exceeded limit values for benzene slightly. P 11 exceeded several limits for aromatic hydrocarbons. P 12 is the well which exceeded the limit values the most. Total aromatic hydrocarbons and polycyclic aromatic hydrocarbons were more than a 100 times over the limit values.
Total	114	

Reference: GeoTest Umweltbeprobung Neu-Isenburg (1998)

* Limit values as determined by the "Bavarian Guidance for limit values"

**The Zell Supply Point has been released to the host nation

Figure 11.7.2

Figure 11.7.3

Figure 11.7.4

11.7.4 Inventorving and Monitoring

Inventorving

An inventory of storm water management retention basins, oil water separators, grease separators, sewer pits and recycling wash racks is maintained by the Utilities Division.

Monitoring

Drinking water quality is monitored in accordance with Chapter 3 of the FGS-G. Details for the 417th BSB are provided in the Water Emergency Contingency Plan FY 99 (18 March, 1999). Wastewater effluent is monitored in accordance with Chapter 4 of the FGS-G.

Samples are taken from the various groundwater monitoring wells at different frequencies as is considered necessary. Records are maintained by the EMO.

11.7.5 Standard Operating Procedures

Standard Operating Procedures (SOPs) for management of drinking water quality and wastewater treatment are detailed in Chapters 3 and 4 of the FGS-G.

11.7.6 Management Issues and Concerns

Management issues and concerns for water resources within the cantonment areas focus on the privatization of the utility systems by September 30, 2003. The utility system must comply with the U.S. as well as the German laws and regulations by this date.

Under the Supplementary Agreement to the NATO-SOFA all procedural requirements and administrative requirements of the law must be complied with. Details regarding the NATO-SOFA are provided in Volume I, Section 6.4.

Potable water is purchased at all locations of the 417th BSB. No wells located on the installations are utilized for potable water supply. Water protection measures have been implemented through the installation environmental program, which include spill management and pollution prevention. However, due to the susceptibility of the aquifer to contamination, additional measures are considered prudent. No measures are required regarding surface water run-off. Most of the roads at the installation do not have curbs or road drainage. Therefore, run-off goes directly into the ground. This complies with the German Water Law, which encourages run off, rather than the capture of all storm water, as long as the surface water is not contaminated. Unnecessary hardstands should be removed from the sewage and drainage system to allow the storm water to drain off naturally.

Currently, additional provisions for an emergency potable water supply are needed in the event that disruptions occur due to natural disasters or service interruptions. Provision of an emergency water supply and development of an emergency contingency plan is a requirement according to Chapter 3, Section 3-3 of the FGS-G.

11.7.7 Management Goals, Objectives and Resources Required for Implementation

Water Resources Goal #1 - Privatizing of the utility systems

All potable supply systems must be privatized by 30 September 2003. By this date the utility system must comply with U.S. and German laws and regulations. At the moment the potable water, which is purchased from a German water supplier, has a brownish color and a bad taste, caused by old pipes. This suggests that the current potable water system is inadequate to meet the requirements of the installation. It is essential that when the system is privatized the system which is in place adequately meets demand in terms of the quality of the water which is supplied, and mechanical aspects such as the pressure at which it is supplied.

Objectives

1. To survey the water supplies to the installation and identify deficiencies;
2. To identify measures to correct deficiencies; and
3. To ensure that the utility systems comply with DoD requirements, and German

laws and regulations.

Resources Required for Implementation

In-house Staff: In-house staff should be utilized to determine the general requirements for the potable water system to meet their needs. Estimated effort: 1 month.

Contractors: Contractors should be utilized to survey the potable water system and identify measures to correct any deficiencies, and to implement these measures. Estimated effort: 12 months. Estimated costs: unknown.

Equipment: Contractor-supplied equipment will be required to investigate deficiencies and construct the necessary corrective infrastructure.. Estimated cost: unknown.

Materials: Materials will be required for infrastructure construction. Estimated cost: unknown.

Water Resources Goal #2 - Impacts from NATO-SOFA (March 1998)

With the revised Supplementary Agreement to the NATO-SOFA, procedural aspects of German law must be complied with in addition to DoD regulations. Therefore the requirements of the amendment to the Drinking Water Regulation of Germany (November 1998), must be incorporated into operating procedures. These requirements include obtaining permits from the German authority to discharge wastewater into watercourses.

Objectives

1. Identify relevant procedural aspects of German law which must be complied with;
2. Apply for the necessary permits;
3. Alter any operating procedures to ensure compliance with German law, in areas such as monitoring and sampling;
4. To ensure compliance with the FGS-G; and
5. To ensure compliance with German laws and regulations.

Resources Required for Implementation

In-house Staff: In-house staff should be utilized to interface with the German authority on the legal issues, to complete the required paperwork, and to implement any procedural changes which may be required. Estimated effort: 4 months.

Contractors: No contractors are needed to complete this goal.

Equipment: No anticipated equipment requirements are needed to complete this goal.

Materials: No anticipated material requirements are needed to complete this goal.

Water Resources Goal #3 - Emergency Water Supply at Marshall Height

In accordance with the FGS-G, all DoD installations must have an 'emergency contingency plan to ensure the provision of potable water despite interruptions from natural disasters and service interruptions'. Marshall Height does not have an Emergency Contingency Plan for potable water. According to the FGS-G, as a minimum the plan must include: identification of key personnel, procedures to restore service, procedures to isolate damaged lines, identification of alternative water supplies, installation public notification procedures, and vulnerability assessments.

Objectives

1. To bring Marshall Height into compliance with the FGS-G;
2. To investigate alternatives and identify an emergency water supply; and
3. To prepare an Emergency Contingency Plan.

Resources Required for Implementation

In-house Staff: In-house staff should be utilized to determine the site specific issues, procedures for public notification, identification of key personnel, procedures to restore the service, procedures to isolate damaged lines, vulnerability assessment, and writing the emergency contingency plan. Estimated effort: 4 months.

Contractors: No anticipated Contractor input is required to complete this goal.

Equipment: No anticipated equipment requirements are needed to complete this goal.

Materials: No anticipated materials requirements are needed to complete this goal.

Water Resources Goal #4 - Monitor unused wells at Giebelstadt Airfield

Two wells at Giebelstadt Airfield are no longer in use due to the high nitrate content of the water. As all potable water is now purchased the wells will not be used in the future. The nitrate within the water could potentially migrate and contaminate the aquifer. Monitoring of the water within the wells and its migration to the aquifer will identify any potential contamination and allow remedial action to be taken.

Objectives

1. To identify potential groundwater contamination; and
2. To apply mitigation measures to prevent contamination of groundwater.

Resources Required for Implementation

In-house Staff: In-house staff should be utilized to implement and undertake monitoring over a period of two to three years. Estimated effort: 36 months.

Contractors: Contractors should be utilized to identify and implement mitigation measures if contamination is identified. Estimated effort: 12 months. Estimated costs: unknown.

Equipment: Contractor-supplied equipment will be required to undertake any mitigation measures if required. Estimated cost: unknown.

Materials: No anticipated material requirements are needed to complete this goal.

Water Resources Goal #5 - Remove unnecessary hardstands and allow storm water to drain off

German water law encourages the run-off of storm water to an aquifer, rather than capturing it and discharging it to a water body, as long as the surface water is not contaminated. In areas with no risk of contamination, unnecessary hardstands should be removed to allow the utilization of natural drainage and so reduce the flow of storm drainage.

Objectives

1. To undertake a survey of the installation to identify all unnecessary hardstands;
2. To modify the infrastructure to allow run-off of uncontaminated, storm water through the natural drainage system; and
3. To ensure compliance with German regulatory requirements.

Resources Required for Implementation

In-house Staff: In-house staff should be utilized to assist with the data collection. Estimated effort: 1 month.

Contractors: Contractors should be utilized to survey the installation, identify areas containing unnecessary hardstands, and measures to green these stands to allow natural drainage. Estimated effort: 10 months. Estimated costs: unknown.

Equipment: Equipment will be required to green the hard stands. These requirements will be identified by the Contractor. Estimated cost: unknown.

Materials: Materials will be required green the hard stands. These requirements will be identified by the Contractor. Estimated cost: unknown.

11.7.8 Project/Programs Priorities

Goal Number	Priority	Development Responsibilities
1	Highest	Contractor & In-house
2	Highest	In-house
3	Highest	In-house
4	Important	Contractor & In-house
5	Important	Contractor & In-house

11.7.9 Cost Saving Opportunities

No direct cost saving opportunities have been identified for this program.

11.7.10 Implementation Schedule

The implementation schedule shown below is specific for the intended life span of the INRMP. It should be noted that schedules may change through adaptive management and the availability of funds.

	Year																			
Goal Number	2000				2001				2002				2003				2004			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1																				
2																				
3																				
4																				
5																				

This schedule shows the time required to complete the work for individual goals (not the man-time). It does not necessarily reflect the time when a particular project will start.

11.7.11 Implementation Funding Options

Goal	Possible Funding Vehicle
1	VENC or OMA
2	VENC, VEPP or OMA
3	VENC, OMA
4	VEPP
5	OMA

417th BSB staff will include additional programming information during the approval action by the Base Support Battalion Commander. In general, the aim is to program funding at least two years in advance of the INRMP development to encourage long-term planning.

11.7.12 Command Support

General information regarding command support can be found in Section 11.1. Additional information on command support for individual projects can be obtained from the EMO.

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11.8 AGRICULTURAL AND GRAZING OUTLEASING PROGRAM

The host nation is responsible for outleasing of lands within the boundaries of the 417th BSB and the U.S. Army has no authority or responsibilities for outleasing. The majority of outleasing that occurs at the installation is in the training areas. Accordingly, more detailed information on the outleasing program is provided in Volume III, Section 14.8. Therefore, the rest of this section has been intentionally left blank.

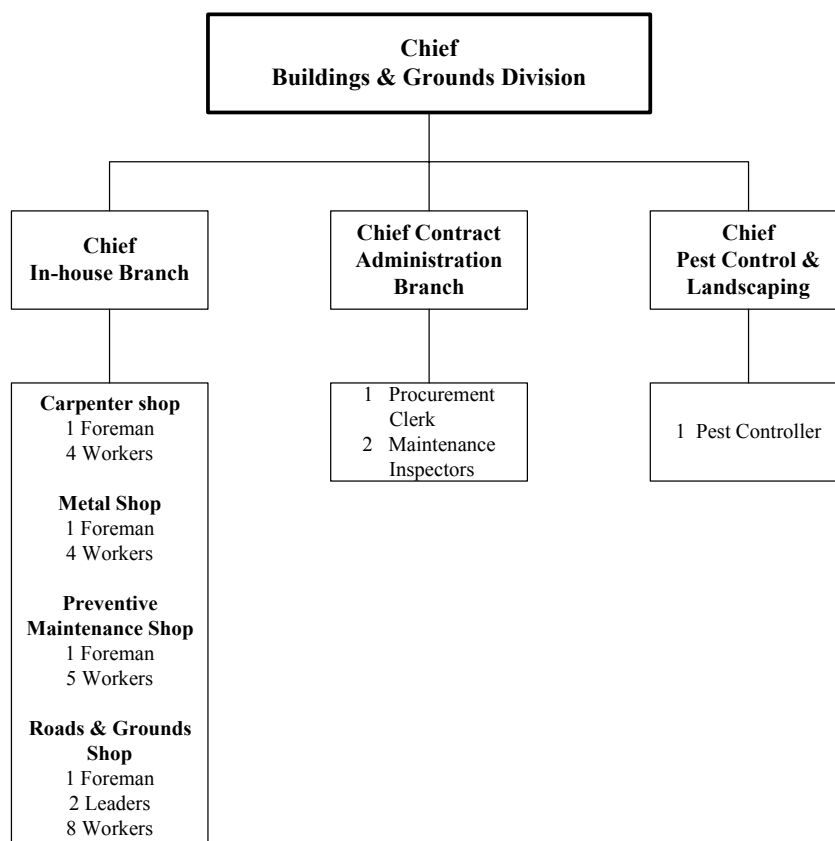
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11.9 PEST MANAGEMENT PROGRAM

11.9.1 Responsibilities and Points of Contact

Chief of Buildings and Grounds Division has primary responsibility for implementing pest management activities. The BSB Pest Management Coordinator is responsible for assigning staff and implementing all pest management activities at the three ASTs Würzburg, Kitzingen, and Giebelstadt. Secondary responsibilities are assigned to DCA, the U.S. Army Health Clinic, building occupants, the golf course, Pest Management Personnel, Safety Office, Occupational Health and Industrial Hygiene.

FIGURE 11.9.1
ORGANIZATION CHART FOR BUILDING AND GROUNDS DIVISION



11.9.2 Regulatory Requirements and Enforcement

Key regulations and guidance associated with this management program are described below. These and other general regulations are discussed in Volume 1, Chapter 6. Some specific regulations and guidance are not listed in Volume 1, Chapter 6, because they are applicable only to this program.

U.S. Department of Defense and U.S. Army Regulations

- AR 200-5 *Pest Management*. (29 October 1999).
- Army Technical Manual 5-629 *Herbicide Manual for Noncropland Weeds*. (24 May 1989).
- DoD Directive 4150.7. *DoD Pest Management Program*. (22 April 1996).
- DoD Plan for the Certification of Pesticides Applicators. (13 June 1978).
- Final Governing Standards Germany (FGS-G). DoD. (March 1996).
- NATO SOFA. USAREUR and 7th Army. (2 August 1959, as amended by the agreements 21 October 1971, 18 May 1981, and 18 March 1993 and the Revised Supplementary Agreement effective 29 March 1998).
- TIM 14 *Protective Equipment for Pest Control Personnel*. (March 1992).
- TIM 15 *Pesticide Spill Prevention and Management*. (June 1992).
- TIM 16 *Pesticide Fire Prevention, Control, and Cleanup*. (June 1981).
- TIM 17 *Pest Control Facilities*. (no date).
- TIM 18 *Installation Pest Management On-site Reviews*. (no date).
- TIM 21 *Pesticide Disposal Guide for Pest Control Workshops*. (October 1986).
- TIM 29 *Integrated Pest Management in and around Buildings*. (1994).
- USAREUR Regulation 690-80 *Employment of Local National Pest Control Personnel*. (29 December 1988).

German Federal Laws

- Gesetz zum Schutz der Kulturpflanzen, Pflanzenschutzgesetz (PflSchG), *Plant Protection Law (14 May 1998)*.
- Biologische Bundesanstalt für Land-und Forstwirtschaft (BBA), *Federal Biological Research Center for Agriculture and Forestry* – web site www.bba.de. This web-site provides the output from work of the Research Center. The BBA is engaged in plant pathology, entomology, plant protection and related fields. It concerns itself with the effects of pesticides on humans, animals and the environment. The German Plant Protection Law defines the majority of the Center's duties.

Other Regulations

- Liste der vom Bundesgesundheitsamt geprüften und anerkannten Desinfektionsmittel und Verfahren, *Federal Public Health Department List of Tested And Accepted Substances and Methods for Disinfection*. (March 1984)
- Liste der vom Bundesgesundheitsamt geprüften und anerkannten Entwesungsmittel und Verfahren zur Bekämpfung tierischer Schädlinge, *List published by the Federal Public Health Department of tested and recognized/accepted substances and methods for the killing of vermin, parasites and pests (anthropods)*. (July 1986).
- Verordnung zur Bereinigung pflanzenschutzrechtlicher Vorschriften, *Ordinance for the Adjustment of Plant Protection/Agricultural Control Regulations*. (10 November 1992).

Other References, Manuals, Books, and Guides

- ASD/Manager, Military Communities and Logistics Letter, *DoD Construction and Use of Termicides*. (14 June 1984).

11.9.3 Program Overview and Status

The Pest Management Plan should implement integrated pest management procedures that prevent pest problems, or conditions conducive to pest problems, in order to minimize the use of pesticides. The Pest Management Plan for the 417th BSB describes the installation's pest management requirements, outlines resources necessary for surveillance and control, and describes the administrative, safety, and environmental requirements of the program (417th BSB, January 1998). In accordance with the FGS-G, the plan is used to reduce reliance on pesticides, enhance environmental protection, and maximize the use of integrated pest management techniques. When pesticide use is warranted, the least toxic and most effective product is used.

The commonly found pests at the installation primarily include: domestic rodents and other vertebrate pests (E.g. mice, rats and pigeons), stored product pests (E.g. rice weevil, granary weevil and saw-toothed grain beetle), ants, crickets, spiders, cockroaches etc., undesirable vegetation and noxious weeds. A comprehensive list is provided in the Pest Management Plan as well as Integrated Pest Management Outlines for targeted pests. Without control these pests could interfere with the military mission, damage property, increase maintenance costs, and expose installation personnel to diseases.

In addition, pest control items are available to family housing residents through the self-help store, operated by the Directorate of Community Activities. The self-help manager gives instruction to residents about pests and the use of pest control items on a case by case basis.

The 417th BSB Pest Management Program has been designed to achieve DoD Pest Management Measures of Merit (MoM), which include the following:

- MoM #1 – By 30 September 1997, all DoD installations will have approved Pest Management Plans;
- MoM #2 – Reduce pesticide use at all DoD installations 50% by 30 September 2000 using FY 93 usage as the baseline; and

- MoM #3 – All pesticide applicators at DoD installations must be certified by 30 September 1998.

The 417th BSB achieved each MoM as of the end of FY 97. The use of pesticides was reduced from the FY 93 baseline of 14.36 pounds of active ingredients (PAI) to 3.52 PAI in FY 97 (75.49% reduction).

At no time will a pesticide be used on the installation unless HQ USAREUR and local German authorities approve it for use. Furthermore, no pesticides will be used whose registration has been suspended or cancelled by the U.S. Environmental Protection Agency or the Federal Republic of Germany (FRG).

In general, mechanical methods are used for vegetation control at the installation. The Pest Management Plan prohibits application of pesticides to sensitive areas or endangered/protected species habitat. Determination of such areas is coordinated with the EMO, the Bundesforstamt, and/or the County of Kitzingen, as necessary.

When contractors are employed and herbicide use is necessary, they are responsible for obtaining a permit from the respective County or City Administration prior to application, according to §6 Abs. 3 PflSchG. If a pesticide application is scheduled for more than one county area (i.e., Würzburg and Kitzingen), the permit will be obtained from the responsible State authority: Bayerische Landesanstalt für Bodenkultur und Pflanzenbau, Postfach 380269, 80615 München.

11.9.4 Inventorizing and Monitoring

Inventorizing

The Pest Management Coordinator maintains an inventory of controlled pests and pesticides used and this information is used to regularly update the Pest Management Plan.

Monitoring

Inspections to detect actual infestation of pests and preparation of recommendations for control are routinely conducted in accordance with the Pest Management Plan (January 1998). The Pest Management Coordinator maintains pesticide usage records for the installation. Monthly Pest Management Reports (DD FORM 1532) are prepared and submitted to the USAREUR Entomologist, who is responsible for tracking pesticide use, to CHPPM-EUR, and to Preventive Medicine. The USAREUR Entomologist summarizes pesticide usage for all USAREUR installations and prepares an annual report for submission to the U.S.Army Environmental Center.

11.9.5 Standard Operating Procedures

Standard Operating procedures for pest management are contained in the Pest Management Plan for the installation (417th BSB, 1998).

11.9.6 Management Issues and Concerns

As of FY 97, the installation had achieved all DoD pest management MoMs. Continued implementation of the approved Pest Management Plan for 417th BSB will ensure that pest infestations are controlled in a manner that does not impact natural resources. Annual updates to the plan will incorporate new developments in Integrated Pest Management in an effort to maintain pesticide usage below 50% of the FY 93 baseline of 14.36 PAI.

In order to reduce dependence on pesticides, and to further reduce pesticide usage non-chemical pest reduction opportunities need to be identified.

11.9.7 **Management Goals, Objectives and Resources Required for Implementation**

Pest Management Goal #1 – Pest Management Plan Implementation.

Continued implementation of the approved Pest Management Plan for 417th BSB will ensure that pest infestations are controlled in a manner that does not impact natural resources. Annual updates to the plan will incorporate new developments in Integrated Pest Management in an effort to maintain pesticide usage below 50% of the FY 93 baseline of 14.36 PAL.

Objectives

1. Continue to conduct pest control activities in accordance with the Pest Management Plan.
2. Make annual updates to the plan to ensure that new developments in Integrated Pest Management are incorporated.
3. Maintain pesticide usage below 50% of the FY 93 baseline of 14.36 PAL.

Resources Required for Implementation

In-house Staff: Pest Management Plan implementation will continue to be the responsibility of in-house staff, as specified in the plan.

Contractors: Contractors will not be utilized as the primary means of pest control, in accordance with the plan.

Equipment: No anticipated equipment requirements to complete this goal.

Materials: No anticipated material requirements to complete this goal.

11.9.8 **Project/Programs Priorities**

Goal Number	Priority	Development Responsibilities
1	Highest	In-house

11.9.9 Cost Saving Opportunities

No direct cost saving opportunities have been identified for this program.

11.9.10 Implementation Schedule

The implementation schedule shown below is specific for the intended life span of the INRMP. It should be noted that schedules may change through adaptive management and the availability of funds.

Goal Number	Year															
	2000				2001				2002				2003			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1																

This schedule shows the time required to complete the work for individual goals (not the man-time). It does not necessarily reflect the time when a particular project will start.

11.9.11 Implementation Funding Options

The table below shows the potential funding sources for the goals identified in this section. The funding vehicle noted is proposed in relation to the wording of the goal and the applicable INRMP timeframe. The precise boundaries for project qualification is not always clear due to the continuing evolution of environmental policy and the multi-faceted nature of some natural resources management issues. Further information about funding vehicles is given in Section 11.1

Goal	Possible Funding Vehicle
1	VEPP

417th BSB staff will include additional programming information during the approval action by the Base Support Battalion Commander. In general, the aim is to program funding at least two years in advance of the INRMP development to encourage long-term planning.

11.9.12 Command Support

General information regarding command support can be found in Section 11.1. Additional information on command support for individual projects can be obtained from the EMO.

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11.10 FIRE MANAGEMENT PROGRAM

The Fire Chief, under direction from The Directorate of Public Works (Community Fire Marshal), has primary responsibility for implementation of the fire management activities. Point of Contact information is provided in Table 10.3.1. A Mutual Aid Agreement in relation to fire protection exists between the 417th BSB and civilian fire departments.

At the present time, controlled burning is not used as a natural resources management tool at the 417th BSB. Therefore, the rest of this section has been intentionally left blank.

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11.11 OUTDOOR RECREATION PROGRAM

11.11.1 Responsibilities and Points of Contact

The Recreation Center and Outdoor Recreation Director, within the Directorate of Community Activities (DCA), has primary responsibility for implementation of outdoor recreation activities at the 417th BSB. Currently, a written Outdoor Recreation Plan does not exist for the installation. The EMO, and the Rod and Gun Club provide support and coordination for natural resources-based outdoor recreation activities as needed. The Bundesforstamt, Staatsforstamt and public and private owners are responsible for wildlife management and hunting on the lands they own. Coordination with the appropriate organization is required for all activities. This coordination is achieved through Public Affairs, the DCA and the DMO. Point of contact information for the Outdoor Recreation Program is provided in Tables 10.3.1 and 10.3.2.

11.11.2 Regulatory Requirements and Enforcement

Key regulations and guidance associated with this management program are described below. These and other general regulations are discussed in Volume 1, Chapter 6. Some specific regulations and guidance are not listed in Volume 1, Chapter 6, because they are applicable only to this program.

U.S Department of Defense and U.S. Army Regulations

- AR 200-3. *Natural Resources - Land, Forest, and Wildlife Management*. (28th February 1995).
- Army Technical Manual 5-635. *Natural Resources: Outdoor Recreation and Cultural Values*. (February 1982).
- Final Governing Standards Germany (FGS-G). DoD. (March 1996).

- NATO SOFA. USAREUR and 7th Army. (2 August 1959, as amended by the agreements 21 October 1971, 18 May 1981, and 18 March 1993 and the Revised Supplementary Agreement effective 29 March 1998).

Other Regulations

- Executive Order 12962. Recreational Fisheries. (7 June 1995).

11.11.3 Program Overview and Status

One focus of any Outdoor Recreation Program is to facilitate optimum and multiple use of natural resources in a manner that does not interfere with mission activities. Outdoor recreation opportunities support the military mission by providing quality of life benefits to military personnel, their families, and the 417th BSB. In addition, participation in these activities increases natural resources awareness and fosters good stewardship of the land. Within the training area natural resource-based activities are limited by the mission. In order to be concise activities for both the cantonment and training areas are described in this section.

Outdoor recreation addressed by this INRMP is limited to activities that are natural resources-based. Other recreational activities that occur outdoors for example, golf and basketball, are not addressed. The majority of natural resources-based outdoor recreation opportunities for the 417th BSB community take place off-post. The Outdoor Recreation Center routinely sponsors and organizes various off-post trips for camping, fishing, skiing, mountain biking, rock climbing, canoeing, and white water rafting. In addition, various types of equipment are available for rent at the Outdoor Recreation Center.

Potential on-post opportunities are limited and include hunting and non-consumptive uses such as wildlife viewing and hiking. However, there are no developed outdoor recreation areas within the installation boundaries. German licenses are required for both on-post and off-post fishing and hunting. Procedures for obtaining licenses are specified in *USAREUR Circular 215-143, Hunting and Fishing Procedures in Germany, 1997* (USAREUR, 1997).

German authorities at the Ordnungsamt in the local Rathaus (Town Hall) issue licenses. Hunting and fishing courses and examinations must be completed prior to obtaining a license. USAREUR-qualified instructors periodically teach courses organized by the Rod and Gun Club and/or the USAREUR Hunting and Fishing Office.

U.S. citizens may hunt at the installation and other federal/state land on a first-come-first-served basis in accordance with local and USAREUR regulations. All U.S. citizens hunting on the installation or other federal/state land must be accompanied by a local forester or guide. All hunts on German federal or state land are booked through the USAREUR Hunting and Fishing Office and hunters must pay applicable Conservation Fees. New agreements were finalized at the beginning of 2000. These are provided in Appendix C2. The 417th BSB Rod and Gun Club is one of the most active clubs within USAREUR. In addition to the lodge facility, the club operates a hunting and fishing supply store at Harvey Barracks. The club sponsors hunting and fishing classes, which are required to obtain German licenses, on a regular basis.

Various locations on the installation are suitable for non-consumptive outdoor recreation activities such as birding, wildlife viewing, and hiking. However, optimal areas for these activities are located within training areas where recreational use is limited by mission activities.

At least one large pond located within the Klosterforst is reported to sustain fish populations capable of supporting a recreational fishery. However, this pond is not open to community use because it is located in a training area. No other recreational fishing opportunities exist on-post. However, fishing is available off-post in public and private waters. Several private fee-fishing lakes are located in the region.

11.11.4 Inventorying and Monitoring

Inventorying

An inventory of equipment available for rent at the Outdoor Recreation Center is maintained by the center. Currently, no outdoor recreation inventory activities occur at the installation.

Monitoring

The Outdoor Recreation Center monitors community demand for specific recreational activities through surveys and questionnaires.

11.11.5 Standard Operating Procedures

The 417th BSB has SOPs for outdoor recreation, but does not have a written Outdoor Recreation Plan.

11.11.6 Management Issues and Concerns

The primary outdoor recreation management issue addressed by this INRMP is the desire to continuously enhance quality of life for the local community. The natural diversity found at the 417th BSB offers tremendous potential for outdoor recreation opportunities. Implementing activities to maximize the use of these resources without interfering with the military mission will improve quality of life, increase environmental awareness, support mission objectives, and demonstrate the U.S. Army's commitment to good stewardship.

In addition to funding and the other resource constraints, several site specific issues must be considered when developing new outdoor recreation opportunities at the 417th BSB. To look at these issues further this section will consider two broad recreational areas: hunting and fishing, and other non-consumptive outdoor recreation.

11.11.6.1 On-post Fishing and Hunting Opportunities

Existing resources are not available for use for fishing due to a combination of training area and land ownership issues. The development of any policy would require cooperation between DCA, Rod and Gun Club, range control, real property, and public affairs. The construction of a fishing lake was once listed as a project on the BSB's EPR (Sims, January 1999). Recent investigations of the site indicate the presence of an old landfill with high concentrations of PAH and arsenic. The construction of a fish pond is no longer being considered; however, the DCA is evaluating other possibilities and sites.

The Kitzingen Rod and Gun Club is officially sponsored by the BSB. This club is active in the development of formal hunting and fishing programs in the BSB and the Greater Franconia area. USAREUR has previously subsidized capital game conservation fees but U.S. hunters now have to pay the same fee as German hunters if they choose to use the USAREUR Capital Game Program. There are several Federal hunts on the installation and these are discussed further in Volume III, Chapter 14.3.

11.11.6.2 Non-Consumptive Outdoor Recreation Opportunities

There is the potential to develop recreation sites at the training areas. Fahr and Gerlachshausen offer river access and are not used very frequently for training. Relatively minor improvements to these areas could make them suitable for use for launching boats and canoes.

EMO has ongoing initiatives to improve habitat quality and environmental awareness on the installation, such as tree plantings during Earth Day activities. Further initiatives can be developed to increase environmental awareness such as creating a multiple use nature trail in Klosterfost and developing a bird checklist for distribution at the Outdoor Recreation Center.

11.11.7 Management Goals, Objectives and Resources Required for Implementation

Outdoor Recreation Goal #1 – Development of a fishing lake

There is not a fishing lake, currently at the installation. The development of such a facility would require a great deal of coordination between the DCA, Rod and Gun Club, range control, real property, and public affairs. However, there is a potential site near the Rod and Gun Club.

Objectives

1. Identify a potential site for the lake.
2. Coordinate with the appropriate agencies.
3. Design and construct a facility.
4. Develop and implement a management plan

Resources Required for Implementation

In-house Staff: Information and support to contractor in identification of a site and development of a management plan. Estimated effort: 3 - 6 months.

Contractors: Contractors will be required to assist with lake planning, design and construction. Estimated effort: 12 months. Estimated cost: unknown.

Equipment: No anticipated equipment requirements to complete this goal.

Materials: No anticipated material requirements to complete this goal.

Outdoor Recreation Goal #2 – Develop and implement natural resource-based outdoor recreation opportunities

It is essential that outdoor recreation opportunities are developed in a manner that does not interfere with the military mission but supports the military mission by providing quality of life benefits to the 417th BSB community. In addition, participation in these activities increases natural resources awareness and fosters good stewardship of the land.

Objectives

1. Maximize the use of natural resources to achieve quality of life benefits for the community.
2. Evaluate potential recreational activity feasibility by including all additional grounds maintenance costs.
3. Evaluate the feasibility of developing new natural resources-based opportunities as a cooperative effort between the Outdoor Recreation Center, DCA, EMO, Bundesforstamt, and local community.
4. Implement new natural resource-based outdoor recreation activities that are specifically tailored to meet the demands and preferences of the community.
5. Encourage participation in all activities to ensure maximum quality of life benefits.

Resources Required for Implementation

In-house Staff: Evaluation and planning of new opportunities. Estimated Effort: 3 - 6 months.

Contractors: Contractors will not be required for evaluating and planning activities. Implementation of specific activities may require the use of contractors. Estimated Effort: unknown. Estimated cost: unknown.

Equipment: No anticipated equipment requirements to complete this goal.

Materials: No anticipated material requirements to complete this goal.

11.11.8 Project/Programs Priorities

Goal Number	Priority	Development Responsibilities
1	Important	In-house
2	Less Important	In-house

11.11.9 Cost Saving Opportunities

No direct cost saving opportunities have been identified for this program.

11.11.10 Implementation Schedule

The implementation schedule shown below is specific for the intended life span of the INRMP. It should be noted that schedules may change through adaptive management and the availability of funds.

Goal Number	Year															
	2000				2001				2002				2003			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1																
2																

This schedule shows the time required to complete the work for individual goals (not the man-time). It does not necessarily reflect the time when a particular project will start.

11.11.11 Implementation Funding Options

The table below shows the potential funding sources for the goals identified in this section. The funding vehicles noted are proposed in relation to the wording of the goals and the applicable INRMP timeframe. The precise boundaries for project qualification under these funding vehicles are not always clear due to the continuing evolution of environmental policy and the multi-faceted nature of some natural resources management issues. Further information about the funding vehicles is given in Section 11.1.

Goal	Possible Funding Vehicle
1	OMA, VENN
2	OMA, AG, VENN

417th BSB staff will include additional programming information during the approval action by the Base Support Battalion Commander. In general, the aim is to program funding at least two years in advance of the INRMP development to encourage long-term planning.

11.11.12 Command Support

General information regarding command support can be found in Section 11.1. Additional information on command support for individual projects can be obtained from the EMO.

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11.12 GROUNDS MAINTENANCE AND VEGETATION MANAGEMENT PROGRAM

11.12.1 Responsibilities and Points of Contact

The Chief of the Buildings and Grounds Division has primary responsibility for administering and implementing grounds maintenance activities. The 417th BSB Kitzingen has three ASTs, Würzburg, Kitzingen and Giebelstadt. Each AST has a facility manager who is responsible for grounds maintenance and vegetation management. The facility managers are directly responsible to the Chief of the Buildings and Grounds Division. The most recent organization chart is provided in Section 11.9, Figure 11.9.1. Secondary responsibilities are assigned to the U.S. Army Health Clinic, Golf course managers and building occupants. Point of Contact information is provided in Table 10.3.2.

11.12.2 Regulatory Requirements and Enforcement

Key regulations and guidance associated with this management program are described below. These and other general regulations are discussed in Volume 1, Chapter 6. Some specific regulations and guidance are not listed in Volume 1, Chapter 6, because they are applicable only to this program.

U.S Department of Defense and U.S. Army Regulations

- AR 200-3. *Natural Resources - Land, Forest, and Wildlife Management*. (28th February 1995).
- Army Technical Manual 5-630. *Natural Resources Land Management*. (July 1982).
- Final Governing Standards Germany (FGS-G). DoD. (March 1996).
- NATO SOFA. USAREUR and 7th Army. (2 August 1959, as amended by the agreements 21 October 1971, 18 May 1981, and 18 March 1993 and the Revised Supplementary Agreement effective 29 March 1998).

11.12.3 Program Overview and Status

Most grounds maintenance and vegetation management work at the 417th BSB is carried out in the cantonment areas. Routine grounds maintenance in the training areas is generally undertaken by the TSD. The only task which is routinely undertaken by Buildings and Grounds staff is the repair and reseeding of ditches adjacent to the roads. To avoid repetition, all of the information for both cantonment and training areas has been detailed within this section.

Maintenance of grounds is essential to the mission. Lands, facilities, and equipment must be protected continuously from dust and erosion. Welfare and morale of personnel is fostered by pleasant surroundings and it is therefore important to develop and enhance the natural terrain and vegetation by appropriate new plantings. To accomplish these objectives, grounds maintenance operations should be conducted to take advantage of, without being damaging to, the varied local ecological factors involved.

Grounds consist of all land and water acreage for which an installation commander has responsibility. Grounds are grouped into improved, semi-improved, and unimproved (Department of the Army, July 1982). This methodology is intended to provide a means of standardizing the level and intensity of maintenance in particular areas. The degree of maintenance performed should be in accordance with the classification type of the area. For example:

- Improved grounds – This category includes grounds on which intensive maintenance activities must be planned and performed annually as fixed requirements. These are generally within built-up sections of an installation. Maintenance operations can include: mowing, irrigating, fertilizing, cultivating, aerifying, sodding, pruning and trimming, weed control, vegetation insect and disease control, landscape planting, maintenance of tamped areas, maintenance of artificial surfaces, for example running tracks and maintenance of playgrounds. The types of areas included are: lawns, landscape planted areas, athletic facilities, parade and drill fields, golf courses,

cemeteries, playgrounds, road shoulders and grassed runways, taxiways and parking areas.

- Semi-improved grounds – These are grounds on which periodic recurring maintenance is performed but to a lesser degree than on improved grounds. Maintenance practices normally include: mowing, weed and brush control, erosion control and drainage maintenance. Types of areas included are: antenna fields, airfield shoulders along runways, ammunition storage areas, clear zones, drop zones, firebreaks, golf course roughs, small arms ranges, picnic areas, railroad beds, road shoulders and wildlife food plots.
- Unimproved grounds – This category includes all acreage not classified as improved or semi-improved grounds. Maintenance activities are generally unpredictable and normally evolve from the military mission, also for soil, water and wildlife conservation, floods fires, insect infestations and disease epidemics. Types of areas include: bombing and gunnery areas, impact areas, training and maneuver areas, forest areas, agricultural and grazing land, forest areas, agricultural and grazing land, lakes, ponds and swamps and areas under buildings and pavements (Department of the Army, July 1982).

Model grounds maintenance standards (MGMS) have been developed by USAREUR. The MGMS provide guidance to enable installations to evaluate and subsequently reevaluate the classification of grounds to ensure cost-effective grounds maintenance operations. Details are provided in Appendix D2.

For the purposes of grounds maintenance and vegetation management there are 9 cantonment areas and 6 training areas at the 417th BSB (see Volume I, Chapter 2). The most recent survey of the grounds at the 417th BSB was in 1998 but it did not consider all of the locations. Spaces have been left within the text for the data to be added by the 417th BSB when it becomes available. The 1998 survey used the definitions given in *Army Technical Manual 5-630* (July 1982) to classify the grounds, and therefore, these values are in accordance with regulatory requirements. In Tables 11.12.1 and 11.12.2, and Figures 11.12.1, 11.12.2, 11.12.3, 11.12.4 and 11.12.5 grounds classifications data based on regulatory standards for the cantonment and training areas are detailed. The hectares provided in Tables 11.12.1 and

11.12.2 are the most up to date based on data provided by USAREUR and Real Property (Holbrook, 2 March 1999 and Wirth, 23 April 1999). Figures 11.12.1 to 11.12.5 are currently being up dated by USAREUR.

The 417th BSB Kitzingen has three ASTs, Würzburg, Kitzingen and Giebelstadt. Each AST has a facility manager who is responsible for grounds maintenance and vegetation management activities. Management of the ASTs are different in so much as the day to day operations of Würzburg, and Kitzingen are managed and undertaken by Buildings and Grounds staff, but at Giebelstadt the work is contracted out to the Standortverwaltung Würzburg (STOV). The work is contracted out as part of the implementing agreement between the Federal Minister of Defense of the Federal Republic of Germany and the Commander in Chief, U.S. Army, Europe and Seventh Army. Details of the implementing agreement are provided in Appendix E2. In the following sections the two different management practices will be considered separately.

Management of grounds maintenance contracts and pesticide usage are co-ordinated through the BSB DPW, B&G Division. Further details on pesticide management are provided in Chapter 11.9.

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TABLE 11.12.1
GROUND CLASSIFICATIONS BASED ON REGULATORY STANDARDS FOR
THE CANTONMENT AREAS

(For clarity values have only been given in hectares)

Location	Grounds Classification (Hectares)			Total
	Improved	Semi-improved	Unimproved	
AST Würzburg				
Breitsohl Radio Site	0	0.98	0	0.98
Faulenberg Kaserne	0.70	0.57	12.04	13.31
U.S. Hospital	1.15	0.96	3.53	5.64
Leighton Barracks	42.80	17.50	77.49	137.79
AST Kitzingen				
Harvey Barracks	12.98	43.93	193.61	250.52
Larson Barracks Cantonment Area	39.07	41.76	45.41	126.24
Marshall Heights	18.05	0.26	13.99	32.20
Schwanberg Radio Site	0	0.35	0	0.35
AST Giebelstadt				
Giebelstadt Area	[insert hectares]	[insert hectares]	[insert hectares]	256.92
TOTALS	[insert hectares]	[insert hectares]	[insert hectares]	<u>823.95</u>

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TABLE 11.12.2
GROUND CLASSIFICATIONS BASED ON REGULATORY STANDARDS FOR
THE TRAINING AREAS

(For clarity values have only been given in hectares)

Location	Grounds Classification (Hectares)			Total
	Improved	Semi-improved	Unimproved	
AST Würzburg				
Roman Hill Range	<i>[insert hectares]</i>	<i>[insert hectares]</i>	<i>[insert hectares]</i>	8.21
AST Kitzingen				
Fahr	0	0	2.11	2.11
Gerlachshausen	0	0	4.39	4.39
Klosterforst	<i>[insert hectares]</i>	<i>[insert hectares]</i>	<i>[insert hectares]</i>	1,074.95
Larson LTA	0	5.63	127.48	133.11
Michelfeld	0	0	38.01	38.01
TOTALS	<i>[insert hectares]</i>	<i>[insert hectares]</i>	<i>[insert hectares]</i>	<u>1260.78</u>

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FIGURE 11.12.1

FIGURE 11.12.2

FIGURE 11.12.3

FIGURE 11.12.4

FIGURE 11.12.5

11.12.3.1 AST Würzburg and Kitzingen

The majority of grounds maintenance operations are carried out by staff allocated to the task by the Chief of Buildings and Grounds, but some work is undertaken by contractors and AFH occupants and this is discussed in more detail in the next paragraph. At Larson Barracks there is an eighteen hole golf course which is managed by the club members.

Areas managed for NAF, MWR, AAFES, AFH, and DoDDS are shown in Figures 11.12.1 to 11.12.5. Currently, reimbursements are not being obtained for MWR, NAF and AFCEE and the costs are included in OMA. Routine grounds maintenance tasks performed for the DoDDS and AFH areas are reimbursed by Interservice Agreements (ISAs) in accordance with *DoD Instruction 4000.19*. Indefinite Delivery Type (IDT) contracts for grounds maintenance have been developed for AFH and DoDDs facilities. Grounds maintenance services covered under these contracts are: grass cutting, pruning, weed control, bush and hedge trimming/pruning, watering of small trees, fertilizer application, aeration, sand replacement, leaf raking, road remarking, sweeping of roads and sidewalks, pick-up litter and trash and snow and ice control on roads and sidewalks. The last four items have not been requested due to funding constraints. Although there is a contract for grounds maintenance tasks, work is completed on an as required basis under the direction of the facility manager at AST Würzburg. Details of the contract program for 1998 are provided in Appendix F2. During 1998 grounds maintenance tasks undertaken included the following:

- Improved areas funded by OMA are mowed 10 times a years. Semi improved areas are mowed between 1 and 2 times a year. Areas managed for NAF and AFCEE are treated as improved;
- Approximately 0.36 hectares (0.91 acres) at Roman Hill Range are mowed twice a year and this location was not included in the original survey;
- Breitsohl and Schwanberg Radio Sites are mowed once a year and these locations were not included in the original survey;
- Grounds maintenance and vegetation management at AFH areas are contracted out. Under the basic contract the grass is cut only when it reaches between 16 and 20 cm high. The grass is cut to an average height of 6 cm, which is lower than the MGMS of

not less than 10 cm. Sportsfields are considered separately and these areas are cut in accordance with MGMS standards. The total area covered by sportsfields is 10.58 hectares (26.13 acres) (Holbrook, May 1998);

- Landscaped areas are maintained to the minimal standards practicable. There is a total of 219.04 hectares of landscaped areas. Tasks include: weeding, pruning, mulching and watering young trees;
- Trees within the immediate vicinity of the cantonment areas are surveyed annually for safety. Pruning and other tasks required are prioritized and those which pose an immediate threat to safety are done quickly. Work undertaken to trees is coordinated with the Bundesforstamt and this is discussed in more detail in the next paragraph;
- Leaves and other similar materials are collected and stored at an interim storage facility maintained by B&G staff before being transported to the City of Würzburg, and the County of Kitzingen;
- VIP visits occur on average once a month. B & G activities of mowing and weeding priority areas are scheduled to coincide with VIP visits;
- Management of sheep grazing at Larson, Leighton and Harvey Barracks is performed on a total XXX acres (153.5 hectares) of which 145.08 hectares are on unimproved grounds and 8.42 hectares are on semi-improved grounds;
- Locations within the cantonment area are visited regularly during the growing season and the work required is noted. At the same time work completed by contractors is inspected; and
- Repairing and reseeded of ditches adjacent to the tank roads within the training area is done when required.

Figure 11.12.6 provides a typical annual timetable for grounds maintenance tasks. Responsibility for the maintenance of trees is split between the Bundesforstamt, Staatsforstamt, Public and Private owners, and B & G staff. All proposed work must be coordinated with the correct land owner. More information regarding forest management is contained within Volume III, Section 14.3.1. A sapling with a diameter greater than 10 cm is considered to be a tree.

FIGURE 11.12.6
TYPICAL GROUNDS MAINTENANCE TIMETABLE

Subject	Action	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Trees Bushes Hedges	Planting (if frostfree)												
	Maintenance of newer Plantings												
	Maintenance of elder Plantings												
	Leaf-Collection												
Lawns	Seeding												
	Mowing												
	Repairing with Sod (if frostfree)												
	Fertilizing												
Grasslands	Mowing												
Ditches Waters	Weed and Mud Removal												
Weeds	Weed Control												

11.12.3.2 AST Giebelstadt

Every year STOV submits a work plan and cost estimate to DPW for planned expenditures within the Giebelstadt area (see Appendix G2). The work plan includes buildings and grounds, and vegetation management tasks. During the year both U.S. personnel and the STOV submit work orders to the facility manager for approval. Once approved the work is completed by contractors, in-house staff (STOV) or local farmers.

Grounds at AST Giebelstadt have not been classified using the definitions given in *Army Technical Manual 5-630* (July 1982). During 1998 grounds maintenance tasks undertaken included:

- Mowing of approximately 204 hectares of grassland. This task was split between in-house staff who mowed 154 hectares and the remaining 50 hectares, which were cut by local farmers. During the year 14 hectares were mowed 20 times and the remaining 140 hectares were only cut 3 times.
- Land covered by trees has been estimated at 12 hectares of which 4 hectares were maintained in-house. Tree surveys for safety, pruning and other tasks required were completed as part of work orders. Work undertaken to trees is coordinated with the Bundesforstamt.
- Leaves and other similar materials were collected and stored at an interim storage facility maintained by in-house staff. Leaves were removed from 17 hectares of grounds including around trees, roads and parking areas.
- During the growing season landscaped areas were maintained on a regular basis. There are 23 hectares of flower beds and gardens and typical examples are illustrated in Photograph 11.12.1.
- During the winter routine grounds maintenance tasks were undertaken to roads, parking areas and the flight line (Neige, 29 April 1999).



Photograph 11.12.1 – Typical Landscaped Areas at AST Giebelstadt. Clockwise from top left. Flower display outside building 531. Flower bed outside the Dental Clinic. Various flower arrangements outside building 611.

11.12.3.3 Comparison of Regulatory Standards and Current Operations

Table 11.12.3 provides a summary of grounds classifications based on regulatory standards versus current operations. The most recent survey of the grounds at the 417th BSB was in 1998 but did not consider all of the locations. Spaces have been left within Table 11.12.3 for the data to be added by the 417th BSB when it becomes available (see Section 11.12.3).

TABLE 11.12.3
SUMMARY OF GROUND CLASSIFICATIONS BASED ON REGULATORY
STANDARDS AND CURRENT OPERATIONS
(For clarity values have only been given in hectares)

Grounds Classification	Cantonment Area (Hectares)		Training Area (Hectares)	
	Regulatory	Current Operations	Regulatory	Current Operations
Improved	<i>[insert hectares]</i>	<i>[insert hectares]</i>	<i>[insert hectares]</i>	<i>[insert hectares]</i>
Semi-improved	<i>[insert hectares]</i>	<i>[insert hectares]</i>	<i>[insert hectares]</i>	<i>[insert hectares]</i>
Unimproved	<i>[insert hectares]</i>	<i>[insert hectares]</i>	<i>[insert hectares]</i>	<i>[insert hectares]</i>
Installation Total	<i>[insert hectares]</i>	<i>[insert hectares]</i>	<i>[insert hectares]</i>	<i>[insert hectares]</i>

11.12.4 Inventorying and Monitoring

Inventorying

Inventories of equipment and mowed grassland areas are maintained and updated annually.

Monitoring

Within the limitations discussed in Section 11.12.3 the following areas are monitored.

- Trees within the cantonment area are surveyed annually for safety reasons;
- Landscaped areas are surveyed to determine the level of maintenance required during the growing season;
- Paved areas and building surrounds are surveyed for weeds during the growing season;
- Records of annual herbicide usage are kept by the Buildings and Grounds Division;
- Acreage and the frequency mowed annually;
- Leaf fall is monitored during the season for safety and aesthetic reasons;
- Ditches adjacent to the tank roads in the training area are surveyed annually to assess the damage and to determine the level of maintenance required; and
- Cost schedules and lists of machinery/equipment, maintenance, and repair are kept.

11.12.5 Standard Operating Procedures

Model Grounds Maintenance Standards are published by the ODCSENGR Environmental Section at USAREUR and these can be found in Appendix D2.

11.12.6 Management Issues and Concerns

Implementation of current or future standards depends on the installation having grounds classification maps for all of the locations and, once completed, these should be regularly updated. Regularly updating the grounds classification map is essential in order to graphically depict the ‘on the ground’ results of current or future grounds maintenance standards. This provides the means to assess the level of effort required in different locations. Although in comparison to the cantonment areas the training areas require a minimal level of maintenance, these locations often require careful maintenance because of the diversity of flora and fauna.

In addition, there are often portions of the training areas that are maintained periodically

because of operational requirements.

Landscaping of facilities is important not just from a quality of life perspective but also for force protection. Currently, several installation facilities are clearly visible from major roads. These could be hidden with suitably planted trees and shrubs.

VIP visits are an unexpected extra demand on Buildings and Grounds staff. For each VIP visit grounds maintenance staff undertake specific tasks but currently there are no protocols detailing tasks with the associated manpower. It is therefore difficult to predict and plan for each visit.

In addition, there are three health and safety issues associated with grounds maintenance in the cantonment area:

- Ensuring that trees are regularly maintained according to a prescribed program. Under NATO-SOFA, the management of urban trees and avoidance of any hazardous conditions, are the responsibility of the tenant, which in this case is the U.S.Army (Elyn, 5 May 1998). There have been incidences where branches have fallen on installation personnel (Elyn, 9 January 1998). Currently, a tree survey is being completed at the installation.
- The improper application of pesticides by post personnel. This issue is addressed in the current Pest Management Plan.
- Ensuring that post personnel understand the safety procedures when using power lawn mowers. This issue is has been addressed by the post safety officer.

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11.12.7 Management Goals, Objectives and Resources required for Implementation

Grounds Maintenance Goal #1 - Develop a Comprehensive Grounds Maintenance Management Plan

Development of a comprehensive management plan which will enable the Chief of Buildings and Grounds to meet grounds maintenance requirements effectively at all locations.

Objectives

1. To list all grounds maintenance tasks and manpower requirements for the each of the locations. Activities should be scheduled to show any seasonal variations in work effort. In addition, the plan should show how each of the ASTs interact.
2. To include a program for implementing tasks and costs associated with VIP visits.

Resources Required for Implementation

In-house Staff: In house staff should be utilized for all aspects of this goal. Estimated effort: 2-3 weeks Project Management time.

Contractors: Contractors should be utilized for all aspects of this project. Estimated effort: 12 months. Estimated cost: unknown.

Equipment: No anticipated equipment requirements to complete this goal.

Materials: No anticipated material requirements to complete this goal.

Grounds Maintenance Goal #2 - Develop grounds maintenance classification maps for all locations and annually update the grounds classification

To provide grounds maintenance to the required standards it is essential to have grounds classification maps for all of the locations including cantonment and training areas. These need to be updated on a regular basis showing all buildings, grounds classification, and funding types. Maintenance standards for Germany, the grounds classification types and mission requirements provide guidance on the level of maintenance required in a particular

area. Local conditions including micro climate and ecological value should also be considered. Funding type should detail grounds maintenance costs which are covered by an ISAs and the level of maintenance is determined by contract. Once this map is complete, it should be updated annually in coordination with EP&S.

Objectives

1. To ensure creation and maintenance of a comprehensive database.
2. To provide guidance on the level of maintenance required for each area.
3. To detail areas covered by ISAs.
4. To provide part of the database from which to develop a comprehensive management plan.

Resources Required for Implementation

In-house Staff: Estimated effort: 2 days a month once set up. Effort to set up unknown.

Contractors: No contractors are needed to complete this goal.

Equipment: No anticipated equipment requirements to complete this goal.

Materials: No anticipated material requirements to complete this goal.

Grounds Maintenance Goal #3 - Economic Analysis of VIP visits

When VIPs visit, a number of maintenance tasks are undertaken and currently there is no account of the cost and manpower requirements for these tasks. The whole process of the tasks, locations, and cost associated with VIP visits versus regular maintenance is worthy of close examination. This is a particular challenge as there are so many different locations, which could be visited.

The first step is to determine exactly which areas are the focus of the maintenance efforts when a VIP visit is announced. A 'VIP Visit Maintenance Plan' does exist outlining the locations of these areas. For example, the areas around the HQ Building would most likely require maintenance of some sort prior to a VIP visit.

The next step would involve determining the level of effort. A monitoring program should be established to record the actual work done and the costs for all VIP visits over the course of one year.

Objectives

1. To establish the maintenance tasks routinely associated with VIP visits.
2. To determine the manpower effort routinely associated with VIP visits.
3. To analyze the manpower efforts associated with VIP visits.
4. Incorporate results from analysis into the grounds maintenance strategy.

Resources Required for Implementation

In-house Staff: Estimated effort: 2 weeks of Project Management time.

Contractors: No contractors are to complete this goal.

Equipment: No anticipated equipment requirements to complete this goal.

Materials: No anticipated material requirements to complete this goal.

Grounds Maintenance Goal #4 - Protocols for VIP visits

For each VIP visit grounds maintenance staff undertake specific tasks. Protocols detailing individual tasks with the associated manpower and costs should be produced so that cost of each visit can be recorded.

Objectives

1. To establish a set of protocols detailing tasks to be accomplished prior to a VIP visit.
2. To determine the manpower utilized and cost of each task undertaken for a VIP visit.

Resources Required for Implementation

In-house Staff: Estimated effort: 2 weeks of Project Management time.

Contractors: No anticipated contract mantime to complete this goal.

Equipment: No anticipated equipment requirements to complete this goal.

Materials: No anticipated material requirements to complete this goal.

Grounds Maintenance Goal #5 - Identify areas suitable for landscaping

Landscaping of facilities is important not just from a quality of life perspective, but also for force protection. Currently there are several locations where installation facilities are clearly visible from major roads. Suitably planted trees and shrubs would provide a level of screening.

Objectives

1. To identify areas suitable for landscaping.
2. To provide details of suitable trees and shrubs.
3. To provide a detailed planting plan.

Resources Required for Implementation

In-house Staff: In house staff should be utilized for all aspects of this goal. Estimated effort: 2-3 weeks Project Management time

Contractors: Contractors should be utilized for all aspects of this project. Estimated

effort: 3 months. Estimated cost: unknown.

Equipment: No anticipated equipment requirements to complete this goal.

Materials: No anticipated material requirements to complete this goal.

11.12.8 Project/Programs Priorities

Goal Number	Priority	Development Responsibilities
1	Important	In-house
2	Important	In-house
3	Less Important	In-house
4	Less Important	In-house
5	Less Important	Contractors

11.12.9 Cost Saving Opportunities

Goals 1 through 4 seek to provide better information to encourage cost-effective grounds maintenance. Goal 5 will be a direct cost.

11.12.10 Implementation Schedule

The implementation schedule shown below is specific for the intended life span of the INRMP. It should be noted that schedules may change through adaptive management and the availability of funds.

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Goal Number	Year																			
	2000				2001				2002				2003				2004			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1																				
2																				
3																				
4																				
5																				

This schedule shows the time required to complete the work for individual goals (not the man-time). It does not necessarily reflect the time when a particular project will start.

11.12.11 Implementation Funding Options

The table below shows the potential funding sources for the goals identified in this section. The funding vehicles noted are proposed in relation to the wording of the goals and the applicable INRMP timeframe. The precise boundaries for project qualification under these funding vehicles are not always clear due to the continuing evolution of environmental policy and the multi-faceted nature of some natural resources management issues. Further information about the funding vehicles is given in Section 11.1.

Goal	Possible Funding Vehicle
1	OMA
2	OMA
3	VEPP or OMA
4	OMA
5	OMA

417th BSB staff will include additional programming information during the approval action by the Base Support Battalion Commander. In general, the aim is to program funding at least two years in advance of the INRMP development to encourage long-term planning.

11.12.12 Command Support

General information regarding command support can be found in Section 11.1. Additional information on command support for individual projects can be obtained from the EMO.

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CHAPTER 12.0

SUMMARY OF THE IMPLEMENTATION OF THE CANTONMENT AREA PLAN

12.1 OVERVIEW

The cantonment area plan focuses primarily on the Water Resources Management Program, Pest Management Program, Outdoor Recreation Program, and Grounds Maintenance and Vegetation Management Program. Grounds Maintenance and Vegetation and the Pest Management Programs both fall under the Buildings and Grounds Division.

The cantonment area plan identifies several requirements, as defined by the FGS-G and USAREUR Regulations which are driven by the 1994 amendment to the NATO SOFA. The top priorities from an administrative perspective are the provision of an emergency potable water supply and preparation for privatization of the water supply system. However, the goals associated with grounds maintenance offer the possibility for more efficient and cost effective management and cost savings.

The cantonment area goals are listed in Table 12.1.1. This table also presents a summary of a proposed implementation schedules. It should be noted however that these schedules might change through adaptive management and the availability of funds.

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TABLE 12.1.1
PRIORITY LIST AND SCHEDULE FOR THE CANTONMENT AREA PLAN

Goal	Priority	Proposed Schedule															
		2000				2001				2002				2003			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Water Resources Goal #1	Highest																
Water Resources Goal #2	Highest																
Water Resources Goal #3	Highest																
Water Resources Goal #4	Important																
Water Resources Goal #5	Important																
Outdoor Recreation Goal #1	Important																
Pest Management Goal #1	Highest																
Grounds Maintenance Goal #1	Important																
Grounds Maintenance Goal #2	Important																
Grounds Maintenance Goal #3	Less Important																
Grounds Maintenance Goal #4	Less Important																
Grounds Maintenance Goal #5	Less Important																

This schedule shows the time to complete the work for the individual goals (not in man-time). It does not necessarily reflect the time when a particular project will start.

APPENDIX A2:
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BIBLIOGRAPHY

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APPENDIX B2:
PERSONS CONTACTED

PERSONS CONTACTED

Name	Title	Building Number	Telephone Number or (DSN)
Ms Assaad	Real Property (417 th BSB)	221	351 4588 (DSN)
Mr Corbin	Range Control – ITAM Program Manager (417 th BSB)	256 (Klosterforst)	351-8206 or 8668 (DSN)
Mr Von Deuster	Staatsforstamt Wiesentheid Balthasar-Neumann-Str. 28	N/A	09383/384 09383/2950 (Fax)
Mr O'Donnell	Chief, Buildings and Grounds Branch, FE Kitzingen	144	0931 355 8881
Mr Elyn	ODCSENG Environmental Division (USAREUR Heidelberg)	3796	370-7699 (DSN)
Mr Fink	98 th ASG	256 (Klosterforst)	355-8206 (DSN)
Mr Gentry	Rod and Gun Club, Kitzingen		09321 305609
Mr Henning	EMO (417 th BSB)	221	0931 296 4582 or 351 4582 (DSN)
Mr Holbrook	ODCSENG Environmental Division (USAREUR Heidelberg)	3796	370-7699 (DSN)
Mr Kreier	Forstrevier Main-Tauber Wilhelm-Wein-St. 33	N/A	0931 97777
Ms Koss	Geologist EMO (417 th BSB)	221	0931 296 4583 or 351 4583 (DSN)
Mr Köstner	Chief, Facility Engineer (417 th BSB)	144 (Harvey Barracks)	09321 305 652
Mr Neeb	Bundesvermögensamt Würzburg	N/A	0931 296 4394
Mr Nickel	Master Planning (417 th BSB)	221	351 4589 (DSN)
Mr Ohlenschlager	Chief, Buildings and Grounds (417 th BSB)	221	0931 296 4449 or 351 4449 (DSN)
Mr Rudolf	Landscape Architect (417 th BSB)	221	09321 296 4619 or 351 4619 (DSN)
Mr Scarbath	USAREUR ITAM Program Manager (Grafenwöhr Training Area)	621	475-6902 (DSN)
Mr Short	Range Control – LTA Manager (417 th BSB)	256 (Klosterforst)	355-8206 (DSN)
Mr Sims	Chief, EMO (417 th BSB)	221	0931 296 4581 or 351 4581 (DSN)
Mr Thal	Chief, Utilities (417 th BSB)	221	0931 2964451
Mr Wirth	Real Property Specialist		0931 296 4394 or 351 4394 (DSN)

APPENDIX C2:
LICENCING ARRANGEMENTS

APPENDIX D2:
MODEL GROUNDS MAINTENANCE STANDARDS

MODEL GROUNDS MAINTENANCE STANDARDS

General Remarks:

1. The first step in assuring cost effective grounds maintenance operations is to evaluate or reevaluate the classification of grounds. Various areas, which are currently classified and maintained as improved grounds, can be downgraded to semi-improved grounds. This downgrading will result in a reduction of the maintenance requirements. Obviously, the degree of maintenance performed must be in accordance with the classification type of the area.

2. Most people underestimate the fact that grass is the most expensive ground cover when it comes to maintenance. The initial cost for establishing are generally relatively low, the follow-up costs however are significant. It is therefore no surprise that mowing represents more than 50%, and in some areas up to 75%, of the overall cost for grounds maintenance.

3. Wherever possible, "no mow" areas must be identified. Areas which are difficult and therefore expensive to maintain, such as steep and hard to maintain slopes, are excellent candidates for being planted with either shrubs, trees or a combination of both. Some areas may be made available for reforestation.

4. When reducing the grass maintenance efforts from high to low (4 or less cuttings a year), a number of things must be observed:

a. Subject areas will not be fertilized anymore.

b. Subject areas will not be watered!

c. "Long grass" areas can not stand the amount of stress (foot traffic) a regularly maintained lawn can.

d. Drastically reducing the maintenance efforts will obviously have an impact on the affected lawns. We are dealing with biological processes; this means that, except for the fact that grasses will stand taller, other changes will continuously occur but very gradually and unnoticed by the general public. Meant is a change in the composition of the vegetation; certain types of grasses will disappear and be replaced by other species. In some cases, bare spots will occur. Corrective measures (e.g., overseeding) may therefore become necessary in certain areas.

e. When reseeding, resodding or overseeding low maintenance areas, the grass mixture must be selected accordingly.

f. Reducing the number of cuttings will not necessarily result in proportional savings: if the number of cuts is (drastically) reduced, the clippings are longer and may need to be removed to avoid severe damage to the turf. The collection, transportation and disposal of these clippings generate costs which must be accounted against the savings.

g. The long grass policy will, in some cases, generate a need for additional (pickup of clippings), different or modified equipment.

h. With the long grass stands there will be potential for:

(1) Increased complaints from hay fever patients

(2) Increased populations of ticks and a therewith related potential higher change for cases of lyme disease (Unlikely and in areas where the disease occurs only!)

(3) Potential for increased small rodent populations (voles).

5. The information provided above makes it clear that establishing a program of reduced grounds maintenance does not mean to let things go wild and have affected areas become junk yards. Areas with reduced maintenance will become natural grasslands which, although not regularly mowed, still require careful management.

6. On the following pages, you will find standards and priorities for the completion of every type of grounds maintenance activity. In some cases, a certain range exists. This is necessary because the development (growth) rate of the vegetation is triggered by a wide variety of influences, such as: soil, elevation, temperature, precipitation, orientation, etc. Professional judgment must here be applied to select the most appropriate standards.

MODEL GROUNDS MAINTENANCE STANDARDS

1. MOWING

a. General Rules:

* Grass heights will be the highest possible, consistent with sound land management practices. In addition to being wasteful, cutting the grass too short and/or too often, weakens it and reduces its vigor and ability to compete with weeds and to stand stress conditions such as traffic and drought.

* Mowing frequencies will be in accordance with the natural growing cycle of cool season grasses: dormant from the middle of October through the middle of March and with a peak growth in May through June.

* Mowing too close to the ground also gives certain weeds a better chance to germinate and grow. This makes, in most instances, "mowing less" to be the cheapest weed control technique of all.

* Lawns will not be mowed during extended periods of drought and heat to avoid undue damages.

* The height of cut will vary and depend upon the type of grounds involved.

* The height of cut of mowers will be set according to the mowing standards hereinafter.

b. Provisions:

1. Administrative and Housing Areas: Mowing operations in subject areas are neither based on safety nor security requirements: the sole purpose is to provide an orderly maintained but not over-manicured general appearance. Specific requirements are:

1.1.1 Within 15 meters from buildings: Maximum vegetation height will be 20 cm, the vegetation will not be cut under 10 cm. Depending on weather, soil conditions and growth rate, cyclic mowing may vary from every 2 to 6 weeks. In no case will mowing be done more often than every week.

1.1.2 Remaining areas: Within subject facilities, areas may be identified which, for grounds maintenance purposed, are to be considered as semi-improved grounds. Meant are all such areas with a low visibility to the general public and those without any kind of representative functions. These type areas will be mowed to the degree of preserving health vegetation only. No height restrictions. Mowing cycle: maximum 2 to 3 times yearly.

1.2 Sportsfields: Grass must be mowed if height exceeds 8 cm for football - or 6 cm for soccer fields. It will not be cut to heights less than 4 cm. Depending on local conditions (weather, soil, usage), the mowing frequency may vary, but will, as an average, be every 10 days.

1.3 Airfields and Heliports:

1.3.1 Grassed Runways, Taxiways and Parking Areas: Height of vegetation will be maintained between 20 cm as a minimum and 30 cm as a maximum.

1.3.2 Hardstands and Paved Taxiways: Vegetation in a 3 meter wide strip of the edge of the pavement will be maintained between 20 cm as a minimum and 30 cm as a maximum.

1.3.3 Paved Runways: Vegetation between the edge of the runway and a parallel line, 1 meter beyond the position lights will be maintained between 20 cm as a minimum and 30 cm as a maximum

1.3.4 Airfield/heliport portions under special local safety or security restrictions: follow specific guidance, issued on a case-by-case basis.

1.3.5 All other airfield/heliport portions: Long grass policy will be implemented. Vegetation will be mowed only 1 or 2 times yearly, exceptionally up to 3 times, depending on special weather conditions and the type of vegetation. Minimum height 20 cm, maximum height is unlimited.

1.4 Small Arms Ranges:

1.4.1 Fire Range Floor: Vegetation must be controlled to not obstruct the line of fire and to not provide concealment to solid objects which may cause ricochets. As a general rule, vegetation on the range floor may not exceed 20 cm in height, it will not be cut under 10 cm in height.

1.4.2 Side Berms:

1.4.2.1 Interior Slopes and Berm Tops: No height restrictions. However, woody plants (trees and shrubs) are not permitted. (ricochets) Vegetation will normally be mowed 1 or 2 times yearly, depending on soil and weather conditions.

1.4.2.2 Exterior Slopes: No height restrictions.

1.5 Conventional Ammunition Storage Areas:

1.5.1 Clear Zones:

1.5.1.1 Vegetation 3.6 meters outside and 9 meters inside of the perimeter fence will be limited to 20 cm in height.

1.5.1.2 Trees are authorized within secure sites and may be retained within clear zones only if:

* Needed for erosion control or legal reasons.

* Tree size permits the removal of all branches within 5 meters of the ground.

* Branches which are extending over the outrigger will be removed up to 3 meters above and up to 3 meters away from the outrigger.

1.5.2 Aboveground magazines and Outdoor Storage Pads: Around this type facilities, a firebreak of 15 meters wide will be kept clear from easily combustible material. No height restrictions.

1.5.3 Earth Covered Magazines: Vegetation within 2 meters of the front air terminal (lightning rod), and within 3 meters of the ventilator shaft will be limited to 30 cm height.

1.5.4 Remaining Areas: Unless these areas fall within any of the other categories, no height restrictions.

1.6 Missile Sites and Special Ammunition Storage Areas:

1.6.1 Clear Zones: The clear zones extend 10 meters inside the inner fence, through the area between the fences and 10 meters outside the outer fence. Vegetation may not exceed 20 cm in height. Trees are not authorized.

1.6.2 Remaining Areas: For all areas which do not fall within another category, the following will apply: Vegetation may not exceed 40 cm, and will not be cut under 15 cm. Normal mowing frequency will be 2-3 times yearly, depending upon weather conditions and type of vegetation.

1.7 Communication Facilities:

1.7.1 Clear Zones: For this type of site, clear zones extend 9 meters inside and outside of the perimeter fence. Vegetation will be limited to 20 cm in height. trees are authorized under the same provisions as listed under paragraph 1.6.1/2 above.

1.7.2 Remaining Areas: Areas for which special safety requirements (e.g. fire prevention) exist. Height limited to 20 cm.

1.7.3 Remaining Areas: No height restrictions.

1.8 Petroleum, Oils and Lubricants (POL) Storage:

1.8.1 Aboveground POL Storage: A firebreak, 9 meters wide, will be maintained around this type of facilities to prevent the build-up of readily combustible material. Vegetation may not exceed 20 cm in height.

1.8.2 Earth Covered Fuel Tanks: Vegetation within 3 meters of manholes will be limited to 20 cm in height.

1.8.3 Remaining Areas: Unless these areas fall within any of the other categories, no height restrictions.

1.9 Mowing Ditches: To the extent to assure the functioning of the drainage systems. As a general rule: twice a year.

2. LEAF COLLECTION

As a general rule, leaves will be collected 4 to 5 times a year as a maximum. Leave collection will not be started before 15 Oct. Where potential safety hazards develop (e.g. walkways, stairs), the leaves should be removed as required to assure safe conditions.

Leaves will be collected only from those areas where they:

- * represent a potential safety hazard (e.g., on roads, walkways, stairs, etc)
- * would hinder the proper function of utilities systems (e.g., clogging drainage and air conditioning unit inlets, etc)
- * would damage the existing vegetation (e.g., on fine turf areas).

For all other areas, leave collection will be considered a nice-to-have operation.

3. PRUNING AND TRIMMING

3.1 Formal Hedges: The number of formal hedges should be kept to a minimum because they require very labor intensive maintenance. Existing hedges will be trimmed a maximum of 2 times yearly. As a general rule, trimming cycles will be completed in early June and in September.

3.2 Bushes: Shrubs and bushes will be trimmed or pruned only:

- * to maintain the natural shape of the plant
- * to prevent/eliminate safety and/or security hazards (e.g., plants blocking free view at intersections, plants obstructing roads or walkways)

Trimming and pruning will be completed as required.

3.3 Urban Trees: Trees will be trimmed or pruned only:

- * to maintain the natural shape of the plant
- * to prevent/eliminate safety and/or security hazards (e.g., plants blocking free view at intersections, plants obstructing roads or walkways)

Trimming and pruning will be completed as required.

In addition to the actual pruning and trimming, urban trees should be visually inspected on an annual basis to detect any signs of decay and to determine the appropriate remedial action.

Trimming and pruning of shrubs and trees will be accomplished by qualified personnel only! Inappropriate handling of these plants may result in irreversible damages and losses. The visual impact created by the removal of this type of vegetation is normally significant.

4. PLANTINGS (Trees and Bushes)

4.1 Legal Requirement: Meant are those plantings which are required based on a legal requirement (e.g., mandatory substitutional tree planting because of local "tree ordinances" ("Baumschutzsatzungen").

4.2 Remaining Plantings: Plantings will be established or replaced to integrate the military facilities into the respective surroundings.

5. HARROW/WEED LANDSCAPE PLANTINGS

5.1 New Landscape Plantings (under 3 years): Will be harrowed 4 to 5 times during the vegetation period. (Apr through Sept). The technique of mulching will be applied to the maximum extent to cut on maintenance efforts. (Also see 6. Mulching)

5.2 Established Plantings: Will be harrowed 3 times yearly during the vegetation period.

6. MULCHING LANDSCAPE PLANTINGS

The use of organic mulch materials will be used to the maximum extent whenever new plantings are being established. Mulch considerably reduces the need for (labor intensive) weed control, and in addition, it enhances the survival chances for the new plantings. It also provides a pleasant appearance.

7. PEST CONTROL

As a general rule, the use of pesticides is very restricted by environmental legislation. Application will be in strict accordance with the produce label. All non-standard pesticides require ODCSENGR approval prior to purchase, storage and application.

7.1 Weed Control: Weeds will be controlled only:

- * to prevent/eliminate safety and security hazards.

- * to prevent damage to pavements, railroads, drainage structures and buildings.

7. PEST CONTROL

7.1.1 Chemical Weed Control: With few exceptions, the use of herbicides is currently possible only for weed control on railroad tracks.

7.1.2 Mechanical Weed Control (on paved areas): As required.

7.2 Insect and Plant Disease Control: As required.

8. SAND EXCHANGE IN SAND BOXES (PLAYGROUNDS)

8.1 Child Development Centres: In accordance with AR 608-10, sand must be exchanged every 6 months or as determined by the local preventive medicine officer.

8.2 All Other Areas: No regulatory requirements exist. As a general rule, sand will be exchanged on a yearly basis. The preventive medical officer can waive this requirements toward both higher or lower requirements. The technique of sieving the sand in-place by means of specialized equipment deserves consideration. Depending on the degree of the pollution, subject method may be the most economical choice.

9. FERTILIZING

All fertilizing should be based on regular (every 3-4 years) soil analyses. This is the only way to determine if there is a valid requirement and how to perform the fertilization in the most economical and most environmental sound manner.

9.1 Sportsfields: Will be fertilized 1 to 2 times a year. Use of slow-release fertilizers is strongly recommended because these will provide a constant and evenly spread release of the nutrients, they will prevent the occurrence of a growth boom, and they will prevent that nutrients are being washed out into the groundwater.

* In the case of 1 fertilization annually: apply late April, early May. Must use slow-release fertilizer.

* If 2 fertilizations annually: apply early May and late September.

9.2 Other Grassed Areas: As required to prevent deterioration and subsequent loss of the vegetation cover. For low maintenance grass areas, see remark 4 a, pg 1.

9.3 Trees, Shrubs, and Landscape Plantings: As required to prevent deterioration and loss of the plants.

10. POLICING

Grounds, including playgrounds will be policed every 1 to 2 weeks.

11. AERIFICATION OF LAWNS

As required to prevent deterioration and loss of turf.

12. SANDING OF LAWNS

As required to prevent deterioration and loss of turf.

13. VERTICUTTING

As required to prevent deterioration and loss of turf.

14. IRRIGATION

As required to prevent loss of turf, trees or landscape plantings. A quantity of at least 10 liter/sqm will be applied in one operation.

15. EROSION

As required to assure environmental impact and prevent increase of damage.

16. CLEANING OF CULVERTS, OUTLETS, SAND TRAPS, ETC

As required to assure that the subject systems remain operational. As a general rule twice yearly.

17. RESEEDING/RESODDING

As required to prevent erosion and to assure that grassed areas remain functional.

18. SPORTSFIELDS (Red Earth and Brick Dust)

Raking, leveling, rolling and replenishing as required to maintain fields operational. Required frequency will depend on degree of utilisation, which varies considerably from site to site.

19. SNOW AND ICE REMOVAL

Operations and priorities will be in accordance with the existing BSB "Snow and Ice Control Plan".

APPENDIX E2:
IMPLEMENTING AGREEMENT AST GIEBELSTADT

APPENDIX F2:

417TH BSB GROUNDS MAINTENANCE CONTRACT PROGRAM

APPENDIX G2:
PLANNED EXPENDITURE AST GIEBELSTADT